Second Correlating Revision No. 165-NFPA 70-2022 [Global Comment]

~~This document must be checked in before creating an SCR~~

Pool, Storable; used for Swimming, Wading, or Immersion (Storable Immersion Pool). (Storable Pool)

Pools installed entirely on or above the ground that are intended to be stored when not in use and are designed for ease of relocation, regardless of water depth. (680) (CMP-17)

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Wed Feb 16 01:44:22 EST 2022

Committee Statement

Committee Statement: The searchable term has been revised to be consistent with terminology used in Article 680 and a second searchable term has been added based on the use of that term in Article 680.

Second Correlating Revision No. 123-NFPA 70-2022 [Global Input]

Revise definitions as seen in attached Word document.

Supplemental Information

File Name	Description	Approved
NEC_RevisedDefsOnly_Global_SCR123.docx	List of revised definitions only. For staff use	
NEC_RevisedDefsOnly_Global_SCR123.docx	For ballot	

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Fri Feb 11 14:16:43 EST 2022

Committee Statement

Committee Statement: The Correlating Committee revised the definitions in accordance with the NEC Style Manual. These terms were revised in accordance with the following sections of the NEC Style Manual including but not limited to definitions 2.2.2 through 2.2.2.5 and acronyms 3.2.3.

Article 100 Definitions

Scope. This article contains only those definitions essential to the application of this *Code*. It is not intended to include commonly defined general terms or commonly defined technical terms from related codes and standards. An article number in parentheses following the definition indicates that the definition only applies to that article.

Informational Note: A definition that is followed by a reference in brackets has been extracted from one of the following standards. Only editorial changes were made to the extracted text to make it consistent with this *Code*.

(1) NFPA 30A-2021, *Code for Motor Fuel Dispensing Facilities and Repair Garages*

(2) NFPA 33-2021, *Standard for Spray Application Using Flammable or Combustible Materials*

(3) NFPA 75-2020, *Standard for the Fire Protection of Information Technology Equipment*

(4) NFPA 79-2021, *Electrical Standard for Industrial Machinery*

(5) NFPA 99-2021, *Health Care Facilities Code*

(6) NFPA *101*®-2021, *Life Safety Code*®

(7) NFPA 110-~~2019~~2022, *Emergency and Standby Power Systems*

(8) NFPA 303-2021, *Fire Protection Standard for Marinas and Boatyards*

(9) NFPA 307-2021, *Standard for the Construction and Fire Protection of Marine Terminals, Piers, and Wharves*

(10) NFPA 499-2021, *Recommended Practice for the Classification of Combustible Dusts and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas*

(11) NFPA 501-~~2017~~2022, *Standard on Manufactured Housing*

(12) NFPA 790-2021, *Standard for Competency of Third-Party Field Evaluation Bodies*

(13) NFPA 1192-2021, *Standard on Recreational Vehicles*

Amplifier (Audio Amplifier) (Pre-Amplifier).

Electronic equipment that increases the current or voltage, or both, of an audio signal intended for use by another piece of audio equipment. Amplifier is the term used ~~within this article~~ to denote an audio amplifier. (640) (CMP-12)

Location, Anesthetizing. (Anesthetizing Location)~~.~~

Any space within a facility that has been ~~designatedfor~~ designated for ~~-~~the administration of any flammable or nonflammable inhalation anesthetic agent during examination or treatment, including the use of such agents for relative analgesia. (517) (CMP-15)

Cable, Armored (Type AC). (Armored Cable)~~, Type AC.~~

A fabricated assembly of insulated conductors in a flexible interlocked metallic armor. (CMP-6)

Audio Signal Processing Equipment. (Audio Equipment)

Electrically operated equipment that produces, processes, or both, electronic signals that, when appropriately amplified and reproduced by a loudspeaker, produce an acoustic signal within the range of normal human hearing (typically 20–20 kHz). Within ~~this~~ Aarticle 640, the terms equipment and audio equipment are assumed to be equivalent to audio signal processing equipment. (640) (CMP-12)

Informational Note: This equipment includes, but is not limited to, loudspeakers; headphones; pre-amplifiers; microphones and their power supplies; mixers; MIDI (musical instrument digital interface) equipment or other digital control systems; equalizers, compressors, and other audio signal processing equipment; and audio media recording and playback equipment, including turntables, tape decks and disk players (audio and multimedia), synthesizers, tone generators, and electronic organs. Electronic organs and synthesizers may have integral or separate amplification and loudspeakers. With the exception of amplifier outputs, virtually all such equipment is used to process signals (using analog or digital techniques) that have nonhazardous levels of voltage or current.

Audio System.

~~Within this article,~~ ~~T~~the totality of all equipment and interconnecting wiring used to fabricate a fully functional audio signal processing, amplification, and reproduction system. (640) (CMP-12)

Bonding Conductor ~~or~~ (Bonding Jumper) ~~(BJ)~~.

A conductor that ensures the required electrical conductivity between metal parts that are required to be electrically connected. (CMP-5)

Branch Circuit. (Branch-Circuit)

The circuit conductors between the final overcurrent device protecting the circuit and the outlet(s). (CMP-2)

Cable, Festoon. (Festoon Cable)

Single- and multiple-conductor cable intended for use and installation ~~in accordance with Article 610~~ where flexibility is required. (610) (CMP-12)

~~**Drilling Rig**~~ **Cable, ~~Type P.~~ Industrial Mobile, (Type IM). (Industrial Mobile Cable)**

A factory assembly of one or more insulated flexible tinned copper conductors, with associated equipment grounding conductor(s), with or without a braided metallic armor and with an overall nonmetallic jacket. (CMP-6)

Cable, Medium Voltage, (Type MV). (Medium Voltage Cable)

A single or multiconductor solid dielectric insulated cable rated 2001 volts up to and including 35,000 volts, nominal. (CMP-6)

Cable, Power and Control Tray, (Type TC). (Power and Control Tray Cable~~, Type TC.~~)

A factory assembly of two or more insulated conductors, with or without associated bare or covered equipment grounding conductors, under a nonmetallic jacket. (CMP-6)

Cable, Power-Limited Tray, (Type PLTC). (Power-Limited Tray Cable) ~~(PLTC).~~

A factory assembly of two or more insulated conductors rated at 300 volts, with or without associated bare or insulated equipment grounding conductors, under a nonmetallic jacket. (CMP-3)

~~**Cables for**~~**Cable, Limited ~~-~~-Use. (Limited-Use Cable)**

Cables that are intended to be used with protection such as a raceway or for specific restricted applications. (722) (CMP-3)

Cablebus.

An assembly of units or sections with insulated conductors having associated fittings forming a structural system used to securely fasten or support conductors and conductor terminations in a completely enclosed, ventilated, protective metal housing. This assembly is designed to carry fault current and to withstand the magnetic forces of such current. (CMP-8)

Informational Note: Cablebus is ordinarily assembled at the point of installation from the components furnished or specified by the manufacturer in accordance with instructions for the specific job.

Cell (as applied to batteries).

The basic electrochemical unit, characterized by an anode and a cathode, used to receive, store, and deliver electrical energy. (CMP-13)

~~**Cell,**~~ **Raceway Cell. ~~(Raceway Cell)~~**

A single enclosed tubular space in a cellular metal or concrete floor member, the axis of the cell being parallel to the axis of the floor member. (CMP-8)

Community Antenna Television Circuit. (CATV) ~~Circuit, Premises Community Antenna Television. [Premises Community Antenna Television (CATV) Circuit]~~

The circuit that extends community antenna television ~~(CATV)~~ systems for audio, video, data, and interactive services from the service provider's network terminal to the appropriate customer equipment. (CMP-16)

Stranding, Concentric. (Concentric Stranding) ~~(as applied to conductor stranding).~~

A conductor consisting of a straight central strand surrounded by one or more layers of strands, helically laid in a geometric pattern. (CMP-6)

Conductor, Insulated. (Insulated Conductor) ~~(as applied to messenger-supported wiring).~~

Overhead service conductor encased in a polymeric material ~~that has been evaluated~~adequate for the applied nominal voltage and any conductor types described in 310.4. (396) (CMP-6)

Informational Note: See ICEA S-76-474-2011, *Standard for Neutral Supported Power Cable Assemblies with Weather-Resistant Extruded Insulation Rated 600 Volts*, for ~~evidence of evaluation of~~information about overhead service conductors.

Control Device, Emergency Lighting. (Emergency Lighting Control Device)

A separate or integral device intended to perform one or more emergency lighting control functions. (700) (CMP-13)

Informational Note: See UL 924, *Emergency Lighting and Power Equipment*, for information covering emergency lighting control devices.

Control Room. ~~(as applied to elevator, dumbwaiter).~~

An enclosed control space outside the hoistway, intended for full bodily entry, that contains the elevator motor controller. The room could also contain electrical and/or mechanical equipment used directly in connection with the elevator or dumbwaiter but not the electric driving machine or the hydraulic machine. (620) (CMP-12)

Diversion Controller (Diversion Charge Controller)~~.~~ (Diversion Load Controller).

Equipment that regulates the output of a source or charging process ~~of an ESS~~ by diverting power ~~from energy storage~~ to direct-current or alternating-current loads or to an interconnected utility service. ~~(706)~~ (CMP-13)

Electric Vehicle Power Export Equipment (EVPE).

The equipment, including the outlet on the vehicle, that is used to provide electrical power at voltages greater than or equal to 30 Vac or 60 Vdc to loads external to the vehicle, using the vehicle as the source of supply. (625) (CMP-12)

Informational Note: Electric vehicle power export equipment and electric vehicle supply equipment or wireless power transfer equipment are sometimes contained in one piece of equipment, sometimes referred to as a bidirectional electric vehicle supply equipment (EVSE) or bidirectional wireless power transfer equipment (WPTE).

Equipment, Portable ~~(as applied to audio equipment).~~ (Portable Equipment)

Equipment fed with portable cords or cables intended to be moved from one place to another. (640) (CMP-12)

Cable System, Fire Resistive. (Fire-Resistive Cable System)~~.~~

A cable and components used to ensure survivability of critical circuits for a specified time under fire conditions. (CMP-3)

Location, Anesthetizing, Flammable. (Flammable Anesthetizing Location)~~.~~

Any area of the facility that has been designated to be used for the administration of any flammable inhalation anesthetic agents in the normal course of examination or treatment. (517) (CMP-15)

Cable Assembly, Flat (Type FC). (Flat Cable Assembly) ~~, Type FC.~~

An assembly of parallel conductors formed integrally with an insulating material web specifically designed for field installation in surface metal raceway. (CMP-6)

General-Purpose Cables, Cable Routing Assemblies, and Raceways.

~~General-purpose cables, C~~cable routing assemblies, and raceways are suitable for general-purpose applications and are resistant to the spread of fire. (722) (CMP-3)

Ground-Fault Circuit Interrupter (GFCI).

A device intended for the protection of personnel that functions to de-energize a circuit or portion thereof within an established period of time when a ground-fault current exceeds the values established for a Class A device. (CMP-2)

Informational Note: See UL 943, Standard for Ground-Fault Circuit Interrupters, for further information. Class A ground-fault circuit interrupters trip when the ground-fault current is 6 mA or higher and do not trip when the ground-fault current is less than 4 mA.~~Class A ground-fault circuit interrupters trip when the~~

~~ground-fault current is 6 mA or higher and do not trip when the ground-fault current is less than 4 mA. For further information, see UL 943, *Standard for Ground-Fault Circuit Interrupters*.~~

Hazard Current.

For a given set of connections in an isolated power system, the total current that would flow through a low impedance if it were connected between either isolated conductor and ground. [99:3.3.72] (517) (CMP-15)

Hazard Current, Fault. (Fault Hazard Current ~~(as applied to hazard current).~~)

The hazard current of a given isolated power system with all devices connected except the line isolation monitor. [**99:**3.3.72.1] (517) (CMP-15)

Monitor Hazard Current. ~~(as applied to hazard current).~~

The hazard current of the line isolation monitor alone. [**99:**3.3.72.2] (517) (CMP-15)

Total Hazard Current. ~~(as applied to hazard current).~~

The hazard current of a given isolated system with all devices, including the line isolation monitor, connected. [**99:**3.3.72.3] (517) (CMP-15)

Locations, Hazardous (Classified). (Hazardous (Classified) Locations) ~~.~~

Locations where fire or explosion hazards might exist due to flammable gases, flammable liquid–produced vapors, combustible liquid–produced vapors, combustible dusts, combustible fiber/flyings, or ignitible fibers/flyings. (CMP-14)

Voltage, High. (High Voltage) ~~.~~

A potential difference of more than 1000 volts, nominal. (CMP-9)

Informational Note: Circuits and equipment rated at potential differences of more than 1000 volts and up to 52 kV are also commonly referred to as medium voltage.

Insulated Bus Pipe ~~IBP~~ Systems.

An assembly that includes bus pipe, connectors, fittings, mounting structures, and other fittings and accessories. (CMP-8)

Industrial Control Panel.

An assembly of two or more components consisting of one of the following: (1) power circuit components only, such as motor controllers, overload relays, fused disconnect switches, and circuit breakers; (2) control circuit components only, such as push buttons, pilot lights, selector switches, timers, switches, and control relays; (3) a combination of power and control circuit components. These components, with associated wiring and terminals, are mounted on, or contained within, an enclosure or mounted on a subpanel. (CMP-11)

Informational Note. The industrial control panel does not include the controlled equipment. ~~(CMP-11)~~

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Information Technology Equipment Room.

A room within the information technology equipment area that contains the information technology equipment. [**75:**3.3.154] (CMP-12)

Cable, Integrated Gas Spacer, (Type IGS). (Integrated Gas Spaced Cable) ~~, Type IGS.~~

A factory assembly of one or more conductors, each individually insulated and enclosed in a loose fit, nonmetallic flexible conduit as an integrated gas spacer cable rated 0 volts through 600 volts. (CMP-6)

Long-Time Rating ~~(as applied to nonmedical X-ray equipment).~~

A rating based on an operating interval of 5 minutes or longer. (660) (CMP-12)

Long-Time Rating (Standby Power).

A rating based on an operating interval of 5 minutes or longer. (517) (CMP-15)

Voltage, Low. (Low Voltage) ~~(as applied to recreational vehicles).~~

An electromotive force rated 24 volts, nominal, or less. (551) (CMP-7)

Loudspeaker. (Speaker)

Equipment that converts an ac electric signal into an acoustic signal. ~~The term speaker is commonly used to mean *loudspeaker.*~~ (640) (CMP-12)

Machine Room ~~(as applied to elevator, dumbwaiter)~~.

An enclosed machinery space outside the hoistway, intended for full bodily entry, that contains the electrical driving machine or the hydraulic machine. The room could also contain electrical and/or mechanical equipment used directly in connection with the elevator or dumbwaiter. (620) (CMP-12)

Machine Room and Control Room, Remote ~~(as applied to elevator, dumbwaiter)~~. (Remote Machine Room and Control Room)

A machine room or control room that is not attached to the outside perimeter or surface of the walls, ceiling, or floor of the hoistway. (620) (CMP-12)

Machinery, Industrial. (Industrial Machinery) (Industrial Machine)

A power-driven machine (or a group of machines working together in a coordinated manner), not portable by hand while working, that is used to process material by cutting; forming; pressure; electrical, thermal, or optical techniques; lamination; or a combination of these processes. It can include associated equipment used to transfer material or tooling, including fixtures, to assemble/disassemble, to inspect or test, or to package. ~~[~~The associated electrical equipment, including the logic controller(s) and associated software or logic together with the machine actuators and sensors, are considered as part of the industrial machine.~~]~~ (CMP-12)

Machinery Space ~~(as applied to elevator, dumbwaiter, platform lift, and stairway chairlift)~~.

A space inside or outside the hoistway, intended to be accessed with or without full bodily entry, that contains the elevator, dumbwaiter, platform lift, or stairway chairlift equipment and could also contain equipment used directly in connection with the elevator, dumbwaiter, platform lift, or stairway chairlift. (620) (CMP-12)

Machinery Space and Control Space, Remote ~~(as applied to elevator, dumbwaiter)~~. (Remote Machinery Space and Control Space)

A machinery space or control space that is not within the hoistway, machine room, or control room and that is not attached to the outside perimeter or surface of the walls, ceiling, or floor of the hoistway. (620) (CMP-12)

Cable, Metal Clad, (Type MC). (Metal Clad Cable~~), Type MC.~~

A factory assembly of one or more insulated circuit conductors with or without optical fiber members enclosed in an armor of interlocking metal tape, or a smooth or corrugated metallic sheath. (CMP-6)

Microgrid Control System (MCS).

A structured control system that manages microgrid operations, functionalities for utility interoperability, islanded operations, and transitions. (CMP-4)

Informational Note: MCS differ from multiple standby generators or uninterruptible power supplies ~~UPSs~~ that are evaluated and rated to operate as a single source of backup power upon loss of the primary power source. MCS functions include coordination, transitions, and interoperability between multiple power sources.

Cable, Mineral-Insulated, Metal-Sheathed, (Type MI). (Mineral-Insulated, Metal-Sheathed Cable~~), Type MI.~~

A factory assembly of one or more conductors insulated with a highly compressed refractory mineral insulation and enclosed in a liquidtight and gastight continuous copper or alloy steel sheath. (CMP-6)

Mobile ~~(as applied to nonmedical X-ray equipment)~~.

X-ray equipment mounted on a permanent base with wheels and/or casters for moving while completely assembled. (660) (CMP-12)

Equipment, Mobile. (Mobile Equipment~~).~~

Equipment with electrical components that is suitable to be moved only with mechanical aids or is provided with wheels for movement by a person(s) or powered devices. (513) (CMP-14)

Momentary Rating ~~(as applied to nonmedical X-ray equipment)~~.

A rating based on an operating interval that does not exceed 5 seconds. (660) (CMP-12)

Momentary Rating (Maximum Power).

A rating based on an operating interval that does not exceed 5 seconds. (517) (CMP-15)

Cable, Nonmetallic-Sheathed. ~~Cable.~~

A factory assembly of two or more insulated conductors enclosed within an overall nonmetallic jacket. (CMP-6)

Cable, Nonmetallic-Sheathed ~~Cable~~, (Type NM).

Insulated conductors enclosed within an overall nonmetallic jacket. (CMP-6)

Cable, Nonmetallic-Sheathed ~~Cable~~, (Type NMC).

Insulated conductors enclosed within an overall, corrosion resistant, nonmetallic jacket. (CMP-6)

Conductors, Outdoor Overhead. (Outdoor Overhead Conductors).~~.~~

Single conductors, insulated, covered, or bare, installed outdoors on support structures in free air. ~~(399)~~ (CMP-6)

~~Pipe~~ Organ, Pipe Sounding Apparatus. (Pipe Organ Sounding Apparatus) (Pipe Organ Chamber)

The sound-producing part of a pipe organ, including, but not limited to, pipes, chimes, bells, the pressurized air- (wind-) producing equipment (blower), associated controls, and power equipment. (CMP-12)

~~Informational Note: The pipe organ sounding apparatus is also referred to as the *pipe organ chamber.*~~

Pool Cover, Electrically Operated. (Electrically Operated Pool Cover)

Motor-driven equipment designed to cover and uncover the water surface of a pool by means of a flexible sheet or rigid frame. (680) (CMP-17)

Portable ~~(as applied to nonmedical X-ray equipment)~~.

X-ray equipment designed to be hand-carried. (660) (CMP-12)

Equipment, Portable. (Portable Equipment).~~.~~

Equipment intended to be moved from one place to another. (530) (CMP-15)

Equipment, Portable. (Portable Equipment).~~.~~

Equipment with electrical components suitable to be moved by a single person without mechanical aids. (511) (CMP-14)

Equipment, Portable. (Portable Equipment).~~.~~

Equipment fed with portable cords or cables intended to be moved from one place to another. (520) (CMP-15)

Safety Circuit.

The part of a control system containing one or more devices that perform a safety-related function. [**79:**3.3.95] ~~(670)~~ (CMP-12)

Informational Note: See NFPA 79-2021, *Electrical Standard for Industrial Machinery. Safety-related control system* and *safety interlock circuit* are common terms that can be used to refer to the safety circuit in other standards. The safety circuit can include hard-wired, communication, and software-related components.

Separable Power Supply Cable Assembly.

A flexible cord or cable, including ungrounded, grounded, and equipment grounding conductors, provided with a cord connector, an attachment plug, and all other fittings, grommets, or devices installed for the purpose of delivering energy from the source of electrical supply to the truck or transport refrigerated unit (TRU) flanged surface inlet. (626) (CMP-12)

Cable, Service. (Service Cable).~~.~~

Service conductors made up in the form of a cable. (CMP-10)

Cable, Service-Entrance. (Service-Entrance Cable)~~Service-Entrance Cable.~~

A single conductor or multiconductor cable provided with an overall covering, primarily used for services, and of the following types:

Cable, Service Entrance, (Type SE).

Service-entrance cable having a flame-retardant, moisture-resistant covering.

Cable, Service-Entrance (Type USE).

Service-entrance cable, identified for underground use, having a moisture-resistant covering, but not required to have a flame-retardant covering.

(CMP-6)

Spa or Hot Tub.

A hydromassage pool, or tub for recreational or therapeutic use, not located in health care facilities, designed for immersion of users, and usually having a filter, heater, and motor-driven blower. It may be installed indoors or outdoors, on the ground or supporting structure, or in the ground or supporting structure. Generally, ~~a spa or hot tub is~~they are not designed or intended to have its contents drained or discharged after each use. (680) (CMP-17)

Transportable ~~(as applied to nonmedical X-ray equipment)~~.

X-ray equipment that is to be installed in a vehicle or that may be readily disassembled for transport in a vehicle. (660) (CMP-12)

Tubing, Electrical Nonmetallic (ENT). (Electrical Nonmetallic Tubing)

A nonmetallic, pliable, corrugated raceway of circular cross section with integral or associated couplings, connectors, and fittings for the installation of electrical conductors. ~~ENT~~ It is composed of a material that is resistant to moisture and chemical atmospheres and is flame retardant.

A pliable raceway is a raceway that can be bent by hand with a reasonable force but without other assistance. (CMP-8)

Locations, Unclassified. (Unclassified Locations)~~.~~

Locations determined to be neither Class I, Division 1; Class I, Division 2; Zone 0; Zone 1; Zone 2; Class II, Division 1; Class II, Division 2; Class III, Division 1; Class III, Division 2; Zone 20; Zone 21; Zone 22; nor any combination thereof. (CMP-14)

Cable, Under Carpet. (Under Carpet Cable)~~.~~

Cables that are intended to be used under carpeting, floor covering, modular tiles, and planks. (722) (CMP-3)

Cable, Underground Feeder and Branch-Circuit, (Type UF). (Underground Feeder and Branch-Circuit Cable)~~, Type UF.~~

A factory assembly of one or more insulated conductors with an integral or an overall covering of nonmetallic material suitable for direct burial in the earth. (CMP-6)

Location, Wet Procedure. (Wet Procedure Location)~~.~~

The area in a patient care space where a procedure is performed that is normally subject to wet conditions while patients are present, including standing fluids on the floor or drenching of the work area, either of which condition is intimate to the patient or staff. [**99:**3.3.187] (517) (CMP-15)

Informational Note: Routine housekeeping procedures and incidental spillage of liquids do not define a wet procedure location. [**99:**A.3.3.187]

Second Correlating Revision No. 124-NFPA 70-2022 [Global Input]

See attached Word file for Style Manual revisions to informational notes throughout the Code.

Supplemental Information

File Name	Description	Approved
NEC_InfoNotes_Global_SCR124.docx	For ballot	

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Fri Feb 11 14:40:55 EST 2022

Committee Statement

Committee Statement: The Correlating Committee revised the informational notes in accordance with the NEC Style Manual. These notes were revised in accordance with the following sections of the NEC Style Manual including, but not limited to structure 3.1.3.1, parallel construction 3.3.5, reference structure 4.1.3, and references to other standards 4.2.

Section	Action (if SCR) and Committee Statement
	The Correlating Committee revised the informational notes in accordance with the NEC Style Manual. These notes were revised in accordance with the following sections of the NEC Style Manual including, but not limited to structure 3.1.3.1, parallel construction 3.3.5, reference structure 4.1.3, and references to other standards 4.2.
210.1	Informational Note: See Part II of Article 235 for requirements ~~that supplement or modify this article~~ for over 1000 volts ac, 1500 volts dc ~~installations, see Article 235~~nominal.
210.17	Informational Note No. 1: See 210.11(C)(2) and 210.52(F), Exception No. 2, for information on laundry branch circuits and receptacle outlets. Informational Note No. 2: See ~~3.3.198.12 and A.3.3.198.12(5) of~~ NFPA 101-2021, *Life Safety Code*, 3.3.198.12 and A.3.3.198.12(5), for the definition of assisted living facilities.
210.19	Informational Note: Conductors for branch circuits as defined in Article 100, sized to prevent a voltage drop exceeding 3 percent at the farthest outlet of power, heating, and lighting loads, or combinations of such loads, and where the maximum total voltage drop on both feeders and branch circuits to the farthest outlet does not exceed 5 percent, provide reasonable efficiency of operation. See ~~Informational Note No. 2 of~~ 215.2(A)(2), Informational Note No. 2, for information on voltage drop on feeder conductors.
210.21(B)(1)	Informational Note: See Article 100 for the definition of *receptacle* ~~in Article 100~~.
215.2(A)(~~1~~2.1)	Informational Note No. 1: See Informative Annex D for Examples D1 through D11 ~~in Informative Annex D~~.
310.12(D) IN-2	Informational Note No. 2: See Informative Annex D, Example D7 ~~in Annex D~~.
310.14(A)(1)	Informational Note No. 1: See 210.19~~(A)~~, Informational Note ~~No. 4~~3, for voltage drop on branch circuits that this section does not take into consideration. See 215.2(A)(2), Informational Note No. 2, for voltage drop on feeders that this section does not take into consideration. Informational Note No. 2: See ~~Table 12.5.1 in~~ NFPA 79-2021, *Electrical Standard for Industrial Machinery*, Table 12.5.1, for the allowable ampacities of Type MTW wire.
310.15(C)(1) IN-1	

	Informational Note No. 1: See Informative Annex B for adjustment factors for more than three current-carrying conductors in a raceway or cable with load diversity.
312.5(C) IN	Informational Note: See ~~Table 1 in~~ Chapter 9, Table 1, Including Note 9, for allowable cable fill in circular raceways. See 310.15 (C)(1) for required ampacity reductions for multiple cables installed in a common raceway. See 300.9 for permissible conductor and cable types installed in raceways in wet locations abovegrade.
314.15 IN 1&2	Informational Note No. 1: See 314.27(B) for boxes in floors~~, see 314.27(B)~~. Informational Note No. 2: See 300.6 for protection against corrosion~~, see 300.6~~.
314.25(A). IN	Informational Note: See 410.42 for metal luminaire canopies, and 404.12 and 406.6(B) for metal faceplates, for additional grounding requirements, ~~see 410.42 for metal luminaire canopies, and 404.12 and 406.6(B) for metal faceplates~~.
352.20(B)	Informational Note: See 300.1(C),~~The~~ for the trade sizes and metric designators that are for identification purposes only and do not relate to actual dimensions. ~~See 300.1(C).~~
353.10(4) IN	Informational Note to (4): ~~Refer to~~ See 300.5 and 300.50 for underground installations.
353.20 IN	Informational Note: See 300.1(C),~~The~~ for the trade sizes and metric designators that are for identification purposes only and do not relate to actual dimensions. ~~See 300.1(C).~~
355.20 IN	Informational Note: See 300.1(C),~~The~~ for the trade sizes and metric designators that are for identification purposes only and do not relate to actual dimensions. ~~See 300.1(C).~~
362.10(2) IN-2	Informational Note No. 2: See NFPA 13-~~2019~~2022, *Standard for the Installation of Sprinkler Systems*, ~~is~~ a recognized fire sprinkler system(s) standard.
362.10(5) IN-3	Informational Note No. 3: See NFPA 13-~~2019~~2022, *Standard for the Installation of Sprinkler Systems*, ~~is~~ a recognized fire sprinkler system(s) standard.
380.1 IN	Informational Note: See Article 100 for the definition of multioutlet assembly ~~in Article 100~~.

392.1 IN	Informational Note: ~~For further information on cable trays,~~ See ANSI/NEMA–VE 1-2017, *Metal Cable Tray Systems*, and NECA/NEMA 105-2015, *Standard for Installing Metal Cable Tray Systems*, for further information on cable trays.
395.30(C) IN	Informational Note: See 395.30(A), (B), and (C) these are not all-inclusive lists.
404.13(C) IN	Informational Note: See Article 100 for the definition of *General-Use Switch* ~~in Article 100~~.
404.13(D) IN	Informational Note: See Article 100 for the definition of a *Motor-Circuit Switch* ~~in Article 100~~.
410.130(F)(5) IN	Informational Note: See ANSI ~~Standard~~ C78.389, *American National Standard for Electric Lamps — High Intensity Discharge, Methods of Measuring Characteristics.*
422.11(F)(3) IN	Informational Note: See IEC 60335-2-21, *Household and similar electrical appliances — Safety — Particular requirements for storage water heaters*, for information on low-pressure and open-outlet heaters are atmospheric pressure water heaters ~~as defined in~~.
422.40 IN	Informational Note: See 410.82 for polarity of Edison-base lampholders~~,~~ ~~see 410.82~~.
424.22(C) IN 1-2	The three Informational Notes are under 424.22(C) and should be renumbered. **424.22(C) Overcurrent Protective Devices.** The supplementary overcurrent protective devices for the subdivided loads specified in 424.22(B) shall meet all of the following conditions: (1) Be factory-installed within or on the heater enclosure or supplied for use with the heater as a separate assembly by the heater manufacturer (2) Be accessible (3) Be suitable for branch-circuit protection ~~Informational Note: See 240.10.~~

	Where cartridge fuses are used to provide overcurrent protection for the subdivided loads, a single disconnecting means shall be permitted to be used as the disconnecting means for all of the subdivided loads. Informational Note No. 1: See 240.10. Informational Note No. ~~1~~2: See 240.10 for supplementary overcurrent protection~~, see 240.10~~. Informational Note No. ~~2~~3: See 240.40 for disconnecting means for cartridge fuses in circuits of any voltage~~, see 240.40~~.
424.41(C) IN	Informational Note: See ~~also~~ 424.41(F).
424.80 IN	Informational Note: See Part V of Article 495 for over ~~600~~ 1000 volts~~, see Part V of Article 490~~.
426.1(B) IN	Informational Note: ~~For further information,~~ See ANSI/IEEE 515.1-2012, *Standard for the Testing, Design, Installation and Maintenance of Electrical Resistance Trace Heating for Commercial Applications,* for further information. ~~Also~~ See ~~applicable sections of the~~ IEEE 844/CSA 293 series of standards for fixed outdoor electric deicing and snow-melting equipment.
430.13	Informational Note: See 310.10(F) for conductors exposed to deteriorating agents~~, see 310.10(F)~~.
430.32(A)(1) IN	Informational Note: See 460.9 ~~Where~~ for power factor correction capacitors that are installed on the load side of the motor overload device~~, see 460.9~~.
500.6(A) IN-1	Informational Note No. ~~2~~1: The explosion characteristics of air mixtures of gases or vapors vary with the specific material involved. For Class I locations, Groups A, B, C, and D, the classification involves determinations of maximum explosion pressure and maximum safe clearance between parts of a clamped joint in an enclosure. It is necessary, therefore, that equipment be identified not only for class but also for the specific group of the gas or vapor that will be present. Informational Note No. ~~3~~2: Certain chemical atmospheres may have characteristics that require safeguards beyond those required for any of the Class I groups. Carbon disulfide is one of these chemicals because of its low autoignition temperature (90°C) and the small joint clearance permitted to arrest its flame.
515.3 IN 4	Informational Note No. 4: ~~Informational Note No. 4:~~ See NFPA-30, *Flammable and Combustible Liquids Code*, ~~Section~~ 7.3, for additional information.
517.33(A) IN	Informational Note: See NFPA *101*-2021, *Life Safety Code*, ~~Sections~~ 7.8 and 7.9.

517.33(B) IN	Informational Note: See NFPA *101*-2021, *Life Safety Code*, ~~Section~~ 7.10.
517.35(B) IN-2	Informational Note No. 2: See 517.30(C) for a description of a dual source of normal power~~, see 517.30(C)~~.
517.42(A). IN-3	Informational Note No. 3: ~~For more information, see~~ See NFPA 99-2021, *Health Care Facilities Code*, 6.7.2.~~3~~2, for more information.
517.43(A) IN	Informational Note: See NFPA *101*-2021, *Life Safety Code*, ~~Sections~~ 7.8 and 7.9.
517.43(B) IN	Informational Note: See NFPA *101*-2021, *Life Safety Code*, ~~Section~~ 7.10.
517.43(C). IN	(1) Fire alarms Informational Note: See NFPA *101*-2021, *Life Safety Code*, ~~Sections~~ 9.6 and 18.3.4. (2) Alarms required for systems used for the piping of nonflammable medical gases Informational Note: See NFPA 99-2021, *Health Care Facilities Code*, 6.7.5.1.2.5.
517.44(B)(4) IN	Informational Note: See 517.43(G) for elevator cab lighting, control, signal system requirements~~, see 517.43(G)~~. [**99:**A.6.7.6.2.1.6(E)(2)]
517.60 IN	Informational Note: See 517.20, if either of the anesthetizing locations in 517.60(A) or 517.60(B) is designated a wet procedure location~~, refer to 517.20~~.
518.1 IN	Informational Note: See ~~the local building code or, in its absence,~~ NFPA *101-2021, Life Safety Code*, or the local building code, for methods of determining population capacity.
518.2(C) IN	Informational Note: See ~~the local building code or, in its absence,~~ NFPA *101-2021, Life Safety Code*, or the local building code, for methods of determining population capacity.
530.21(B) IN 1&2	Informational Note No. 1: ~~For requirements covering temporary outdoor use of equipment not identified for use~~ See ANSI/ESTA E1.58 *Electrical Safety Standard for portable Stage and Studio Equipment Used Outdoors* for requirements covering temporary outdoor use of equipment not identified for use. Informational Note No. 2: ~~For guidance on the use of GFCIs in wet locations~~ See ANSI/ESTA E1.19 – 2015 Recommended Practice for the use

	of Class A Ground-Fault Circuit Interrupters (GFCIs) intended for personnel protection in the Entertainment Industry for requirements covering temporary outdoor use of equipment not identified for use.
547.44 IN 1&2	Informational Note No. 1: See ~~American Society of Agricultural and Biological Engineers (ASABE)~~ ASEA/ASABE EP473.2-2001 (R2015), Equipotential Planes in Animal Containment Areas, for methods to establish equipotential planes. Informational Note No. 2: See ~~American Society of Agricultural and Biological Engineers (ASABE)~~ ASEA/ASABE EP342.3-2010 (R2015), Safety for Electrically Heated Livestock Waterers, for methods for safe installation of livestock waterers.
552.5 IN	Informational Note: ~~For guidance on other label criteria used in the park trailer industry, refer to~~ See ANSI Z535.4-2011, *Product Safety Signs and Labels*, for guidance on other label criteria used in the park trailer industry.
552.10(E)(2) IN	Informational Note: ~~For further information,~~ See ANSI/SAE J554-1987, *Standard for Electric Fuses (Cartridge Type)*; SAE J1284-1988, *Standard for Blade Type Electric Fuses*; and UL 275-2005, *Standard for Automotive Glass Tube Fuses*, for further information.
552.44(C)(2) IN	Informational Note: ~~Complete details of this configuration can be found in~~ See ANSI/NEMA WD 6-2016, *Wiring Devices — Dimensional Specifications*, Figure 14-50, for complete details of this configuration.
590.6(B)(2). IN	Informational Note: ~~The Occupational Safety and Health Administration~~ See OSHA 29 CFR 1910 and 1926 ~~contain~~ for requirements for assured equipment grounding conductor programs. ~~Additional information is provided in~~ See NFPA 70E-2021, *Standard for Electrical Safety in the Workplace*, for additional information.
620.61(B)(4) IN	Informational Note: ~~For further information,~~ See 430.44 for further information, for orderly shutdown.
645.4 IN-1	Informational Note: See NFPA 75-2020, *Standard for the Fire Protection of Information Technology Equipment*, Chapter 11, ~~Section~~ 11.1, 11.1.1, 11.1.2, and 11.1.3, for further information.
646.15 IN	Informational Note: See NFPA *101*-2018, *Life Safety Code*, ~~Section~~ 7.8, for information on illumination of means of egress.
646.16 IN	Informational Note: See NFPA *101*-2018, *Life Safety Code,* ~~Section~~ 7.9, for information on emergency lighting.
690.7(A) IN-2	Informational Note No. 2: ~~One industry standard method for calculating~~

	~~maximum voltage of a PV system is published by Sandia National Laboratories, reference~~ See SAND 2004-3535, *Photovoltaic Array Performance Model*, for one industry standard method for calculating maximum voltage of a PV system.
690.8(A)(1) IN	Informational Note: ~~One industry standard method for calculating maximum voltage of a PV system is published by Sandia National Laboratories, reference~~ See SAND 2004-3535, *Photovoltaic Array Performance Model*, for one industry standard method for calculating maximum voltage of a PV system. This model is used by the System Advisor Model simulation program provided by the National Renewable Energy Laboratory.
691.1 IN-2	Informational Note No.2: ~~Section~~ See 90.2(B)(5) ~~includes~~ for additional information about utility-owned properties not covered under this *Code*. ~~For additional information on electric supply stations,~~ See ANSI/IEEE C2-2017, *National Electrical Safety Code,* for additional information on electric supply stations.
691.4 IN-1	Informational Note No. 1: ~~Refer to~~ See NFPA *70E*-2021, *Standard for Electrical Safety in the Workplace*, for electrical safety requirements.
691.9 IN	Informational Note: ~~For information on electrical system maintenance,~~ See NFPA 70B-2019, *Recommended Practice for Electrical Equipment Maintenance,* for information on electrical system maintenance. ~~For information on written procedures and conditions of maintenance, including lockout/tagout procedures,~~ See NFPA *70E-2021, Standard for Electrical Safety in the Workplace,* for information on written procedures and conditions of maintenance, including lockout/tagout procedures.
694.40(B)(4) IN	Informational Note: Guy wires supporting grounded towers are unlikely to become energized under normal conditions, but partial lightning currents could flow through guy wires when exposed to a lightning environment. Grounding of metallic guy wires may be required by lightning standards. ~~For information on lightning protection systems,~~ See NFPA 780-2017, *Standard for the Installation of Lightning Protection Systems*, for information on lightning protection systems.
694.66 IN	Informational Note: Wind turbines might use the electric grid to dump energy from short-term wind gusts. ~~Normal operating voltages are defined in~~ See ANSI C84.1-2006, *Voltage Ratings for Electric Power Systems and Equipment (60 Hz)* for information on normal operating voltages.
700.12(B) IN-1	Informational Note No. 1: See NFPA 101-2021, Life Safety Code, for the definition of *Occupancy Classification*, ~~Section~~ 6.1
705.20 IN	Informational Note: See 480.7, Part II of Article 445 ~~Part II~~, Part III of Article 690 ~~Part III~~, Part III of Article 692 ~~Part III~~, Part III of

	Article 694 ~~Part III~~, and Part II of Article 706 ~~Part II~~ for specific source disconnecting means requirements.
708.4 IN	Informational Note: See ~~Chapter 5 of~~ *NFPA 1600*-2019, *Standard on Continuity, Emergency, and Crisis Management*, Chapter 5, which provides additional guidance concerning risk assessment and hazard analysis.
708.64 IN	Informational Note: See *NFPA 1600*-2019, *Standard on Continuity, Emergency, and Crisis Management*, ~~Section~~ 5.7, which provides guidance for the development and implementation of emergency plans.
722.24(A) IN-1	Informational Note No. 1: See NFPA 90A-2021, *Standard for the Installation of Air-Conditioning and Ventilating Systems*, for discrete combustible components ~~installed in accordance with 300.22(C)~~.
722.135 IN-1	Informational Note No. 1: ~~For information on fire protection of wiring installed in ducts specifically fabricated for environmental air and other spaces used for environmental air (plenums),~~ See ~~4.3.4 and 4.3.11.3.3 of~~ NFPA 90A-2021, *Standard for the Installation of Air-Conditioning and Ventilating Systems,* 4.3.4 and 4.3.11.3.3, for information on fire protection of wiring installed in ducts specifically fabricated for environmental air and other spaces used for environmental air (plenums).
725.60 IN-2	Informational Note No. 2: ~~Table 11(A) and Table 11(B) in~~ See Chapter 9, Table 11(A) and Table 11(B), ~~in~~ provide ~~the~~ requirements for listed Class 2 and Class 3 power sources.
760.49(B). IN	Informational Note: See Table 402.3, for application provisions~~, see Table 402.3~~.
760.121(A) IN-1	Informational Note No. 1: ~~Tables 12(A) and 12(B) in~~ See Chapter 9, Tables 12(A) and 12(B) ~~provide~~ for the listing requirements for power-limited fire alarm circuit sources.
760.154(A) IN	Informational Note: See 800.179 for information on communications cables (CMP, CMR, CMG,CM)~~, see 800.179~~.
805.90(A)(1) IN	Informational Note: See ~~Section 09 of~~ ANSI/IEEE C2-2017, *National Electrical Safety Code*, 09, for examples of methods of protective grounding that can achieve effective grounding of communications cable sheaths for cables from which communications circuits are extended.
810.15 IN	Informational Note: See ~~4.8.3.1 of~~ NFPA 780-2020, *Standard for the Installation of Lightning Protection Systems*, 4.8.3.1, for the application of the term *rolling sphere*.
820.100 IN	Informational Note: See ~~4.8.3.1 of~~ NFPA 780-2017, *Standard for the*

	Installation of Lightning Protection Systems, 4.8.3.1, for the application of the term *rolling sphere*.

Second Correlating Revision No. 133-NFPA 70-2022 [Global Input]

Restructuring of Article 725 changed the location of requirements in Article 725. This revision restores the correct references across the document.

Supplemental Information

File Name	Description	Approved
NEC_725Restructure_Global_SCR133.docx	For ballot	

Submitter Information Verification

Committee: NEC-AAC
Submittal Date: Fri Feb 11 16:40:01 EST 2022

Committee Statement

Committee Statement: Restructuring of Article 725 changed the location of requirements in Article 725. This revision restores the correct references across the document.

Section	Action
430.113, Exception No. 2	Change Part III to Part II
675.16, 675.17	Change Part III to Part II
646.3(K)(4)	Change Part III to Part II
645.4	Change Part III to Part II
640.42(B)	Eliminate reference to Part IV
640.21(B) and (C)	Change reference from Article 725 to Article 722
640.9(C)	Add reference to Article 724
640.9(A)(3)	Change reference from “Article 725” to “Part II of Article 725”

Second Correlating Revision No. 134-NFPA 70-2022 [Global Input]

Throughout the document delete all occurrences of the term “type” where it precedes a specific raceway. The raceways affected by this revision are:

(1) Intermediate Metal Conduit (IMC)

(2) Rigid Metal Conduit (RMC)

(3) Flexible Metal Conduit (FMC)

(4) Liquidtight Flexible Metal Conduit (LFMC)

(5) Rigid Polyvinyl Chloride Conduit (PVC)

(6) High Density Polyethylene Conduit (HDPE Conduit)

(7) Reinforced Thermosetting Resin Conduit (RTRC)

(8) Liquidtight Flexible Nonmetallic Conduit (LFNC)

(9) Electrical Metallic Tubing (EMT)

(10) Flexible Metallic Tubing (FMT)

(11) Electrical Nonmetallic Tubing (ENT)

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Fri Feb 11 16:59:06 EST 2022

Committee Statement

Committee Statement: The word “Type” has been deleted by CMP-8 when locate before all raceways references for which CMP-8 has responsibility, however the word “Type” has not been removed in other articles in locations ahead of raceways. All other occurrences of “type” locations ahead of a specific raceway needs to be deleted. (“Type” should remain for cables).

Second Correlating Revision No. 161-NFPA 70-2022 [Global Input]

Revise Article 235 as follows:

Revise article title to read: Article 235 Branch Circuits, Feeders, and Services Over 1000 Volts ac, 1500 Volts dc, Nominal

Add Parts I and II as follows (Part I includes only 235.1):

Part I. General

235.1 Scope.

This article provides the general requirements for branch circuits, feeders, and services over 1000 volts ac or 1500 volts dc, nominal.

Informational Note: See ANSI/IEEE C2-2017, National Electrical Safety Code, for additional information on wiring over 1000 volts, nominal.

Part II. Branch Circuits

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 15 18:39:05 EST 2022

Committee Statement

Committee Statement: The Scope statement is revised to align with the wording in 210.1 and incorporate “feeders” and “services” into the title of Article 235, and the Scope statement in 235.1 (reference SR 8472). Informational Note is also added, consistent with CMP 10’s intent, based on the complete record of SR 8472. In addition, the separate actions by CMP’s 2 and 10 expanded Article 235 to require the structure to include “Parts”. While Part III, added by CMP 10, addresses “Feeders”, there are no Parts I and II. Part I is added for “General”, and Part II is added for “Branch Circuits”.

Second Correlating Revision No. 26-NFPA 70-2022 [Global Input]

See revisions to 225.1, 230.1 and 235.203.

225.1 Scope.

This article covers requirements for outside branch circuits and feeders not over 1000 volts ac or 1500 volts dc, nominal, run on or between buildings, structures, or poles on the premises; and electrical equipment and wiring for the supply of utilization equipment that is located on or attached to the outside of buildings, structures, or poles.

230.1 Scope.

This article covers service conductors and equipment for control and protection of services not over 1000 volts ac or 1500 volts dc, nominal and their installation requirements.

235.203 Overcurrent Protection.

Feeders shall be protected against overcurrent.

Supplemental Information

File Name	Description	Approved
NEC_Global_SCR26.docx	For staff use	

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 13:30:53 EST 2022

Committee Statement

Committee Statement: The Scope statement is revised to use standard terms as specified in 3.2.4 of the NEC Style Manual, and the reference to Part IX of Article 240 is removed, as those requirements have been relocated to Article 245:

Second Correlating Revision No. 46-NFPA 70-2022 [Global Input]

The Correlating Committee directs where the terms “Drilling Rig Cable: Type P”, “Drilling Rig Cable”, or “Type P Cable” are used in the NEC, they be replaced with the terms “Industrial Mobile Cable: Type IM”, “Industrial Mobile Cable”, or “Type IM Cable”, respectively, for correlation with the title change to Article 337.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 16:05:26 EST 2022

Committee Statement

Committee Statement: The terms “Drilling Rig Cable: Type P”, “Drilling Rig Cable”, or “Type P Cable” are replaced with the terms “Industrial Mobile Cable: Type IM”, “Industrial Mobile Cable”, or Type IM Cable”, respectively, for correlation with the title change to Article 337.

Second Correlating Revision No. 94-NFPA 70-2022 [Global Input]

Replace “Fire Alarm Circuit Integrity (CI) Cable” with “Circuit Integrity (CI) Cable”.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Wed Feb 09 11:58:37 EST 2022

Committee Statement

Committee Statement: The definition of Circuit Integrity Cable also includes Fire Alarm Circuit Integrity Cable and there is no need to have a unique definition for Fire Alarm Circuit Integrity Cable. Even NFPA 72 uses Circuit Integrity Cable not “Fire Alarm” Circuit Integrity Cable.

Second Correlating Revision No. 129-NFPA 70-2022 [Detail]

[New Section After New 722.10]

722.12 Uses Not Permitted.

Class 4 cables shall not be permitted for any applications that are not part of a Class 4 system.

Exception: Use of Class 4 cable for other applications shall be permitted if the cable has been listed as suitable for the other applications.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Fri Feb 11 15:53:44 EST 2022

Committee Statement

Committee Statement: The permitted use in Hazardous Classified Locations is moved to 722.10, and is modified to use similar language from 337.10 regarding applications in hazardous locations. “CL4” is replaced with “Class 4” where not associated with the designation of the cable.

Second Correlating Revision No. 131-NFPA 70-2022 [Detail]

[Revised title for Article 726]

Article 726 Class 4 Fault-Managed Power Systems

Supplemental Information

File Name	Description	Approved
NEC_726_SCR131.docx	For staff use	

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Fri Feb 11 16:06:43 EST 2022

Committee Statement

Committee Statement: Terminology for “Class 4” and “Fault-Managed” are updated for consistency and correlation. “CL4” is replaced with “Class 4” where not associated with the designation of the cable.

Second Correlating Revision No. 160-NFPA 70-2022 [Detail]

~~This document must be checked in before creating an SCR~~
Revise Article 722 title to read: **Cables for Power-Limited Circuits, Fault-Managed Power Circuits ~~(Class 4)~~ , and Optical Fiber**

Submitter Information Verification

Committee: NEC-AAC
Submittal Date: Tue Feb 15 17:31:03 EST 2022

Committee Statement

Committee Statement: Terminology for “Class 4” and “Fault-Managed” are updated for consistency and correlation.

Second Correlating Revision No. 42-NFPA 70-2022 [Detail]

220.40 General.

The calculated load of a feeder or service shall not be less than the sum of the loads on the branch circuits supplied, as determined by Part II of this article, after any applicable demand factors permitted or required by Part III, ~~or Part~~ IV, V , VI or ~~required by Part~~ VII have been applied.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 15:43:58 EST 2022

Committee Statement

Committee Statement: The Correlating Committee directs this section be revised due to the relocation of 220.48 to a new Part VI and 220.58 to a new Part VII.

Second Correlating Revision No. 84-NFPA 70-2022 [Detail]

Add new section:

495.2 Reconditioned Equipment.

Except as modified within this article, reconditioned equipment shall not be permitted.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Wed Feb 09 10:43:51 EST 2022

Committee Statement

Committee Statement: The Correlating Committee added general requirements for reconditioned equipment in 495.2 to provide consistency and improve usability of the code. Users looking for information on reconditioned equipment will start at the general requirement and then look within the article for adjustments for specific equipment types. Section 495.49 was not relocated based on the location within Part III and applying specifically to switchgear.

Second Correlating Revision No. 85-NFPA 70-2022 [Detail]

411.2 ~~Listing~~ ~~Required~~ReconditionedEquipment.

~~Low voltage lighting systems shall comply with 411.5(A) or (B).~~ Listed low-voltage lighting systems or a lighting system assembled from listed parts shall not be ~~permitted to be~~ reconditioned.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Wed Feb 09 10:51:21 EST 2022

Committee Statement

Committee Statement: The Correlating Committee relocates the requirement on reconditioned equipment from 411.5 to 411.2 for consistency with other articles in the Code.

Second Correlating Revision No. 86-NFPA 70-2022 [Detail]

[Move from 800.3(G) to 800.2]

~~(G)~~ 800.2 Reconditioned Equipment.

The requirements of 110.21(A)(2) shall apply.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Wed Feb 09 10:56:24 EST 2022

Committee Statement

Committee Statement: The Correlating Committee relocates 800.3(G) to 800.2 for consistency with other articles of the Code.

Second Correlating Revision No. 95-NFPA 70-2022 [Detail]

Add new section:

726.12 Uses Not Permitted.

Class 4 power systems shall not be permitted in dwelling units.

Submitter Information Verification

Committee: NEC-AAC
Submittal Date: Wed Feb 09 12:26:58 EST 2022

Committee Statement

Committee Statement: A new section is created to establish a “Uses Not Permitted” to relocate the Class 4 Power System restriction from the scope.

Second Correlating Revision No. 112-NFPA 70-2022 [Definition: Cable, Abandoned. (Abandoned Cable)]

Cable, Abandoned. (Abandoned Cable)

Installed cable that is not terminated at equipment other than a termination fitting or a connector and is not identified for future use with a tag. ~~(800)~~ (CMP-16)

Informational Note: See 640.6(B) , 645.5(G) , 722.25 , 760.25 , 770.25 , and 800.25 for requirements covering the removal of abandoned cables.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Fri Feb 11 11:40:08 EST 2022

Committee Statement

Committee Statement: In the Informational Note, the reference to section 726.25, does not exist and the reference is removed. The article reference after the defined term is removed so the definition will apply globally throughout the code in accordance with the NEC Style Manual 2.2.2.3.2.

SR-7970-NFPA 70-2021

Second Correlating Revision No. 137-NFPA 70-2022 [Definition: Cable, Circuit Integrity (CI). [Circuit Integri...]

Cable, Circuit Integrity (CI). (Circuit Integrity (~~CI)~~ Cable.)

Cable(s) marked with the suffix "-CI" used for remote-control, signaling, power-limited, fire alarm, optical fiber, or communications systems that supply critical circuits to ensure survivability for continued circuit operation for a specified time under fire conditions. (CMP-3)

Informational Note: See 728.4 for power circuits installed for survivability.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 15 09:39:35 EST 2022

Committee Statement

Committee Statement: The (CI) acronym was removed from the searchable term for compliance with the NEC Style Manual.

SR-8624-NFPA 70-2021

Second Correlating Revision No. 132-NFPA 70-2022 [Definition: Cable, Communications Circuit Integrity (CI). (...]

~~**Cable, Communications Circuit Integrity (CI). (Communications Circuit Integrity Cable)**~~

~~Cable used in communications systems to ensure continued operation of critical circuits during a specified time under fire conditions. (805) (CMP-16)~~

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Fri Feb 11 16:37:44 EST 2022

Committee Statement

Committee Statement: The definition of cable, circuit integrity indicates applicability to communications circuits. A separate definition for communications circuit integrity cable is deleted as it is covered by the base definition.

Second Correlating Revision No. 114-NFPA 70-2022 [Definition: Cable, Instrumentation Tray, Type ITC. (Instrum...]

Cable, Instrumentation Tray (Type ITC). (Instrumentation Tray Cable) ~~(Type ITC).~~

A factory assembly of two or more insulated conductors, with or without an equipment grounding conductor(s), enclosed in a nonmetallic sheath. ~~(335)~~ (CMP-3)

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Fri Feb 11 11:45:40 EST 2022

Committee Statement

Committee Statement: The cable definition applies throughout the code and the reference to the Article number following the definition is removed in accordance with the NEC Style Manual 2.2.2.3.2.

The Acronym (Type ITC) follows the defined term in parentheses. These changes were made in accordance with the NEC Style Manual 3.2.3.

SR-8657-NFPA 70-2021

Second Correlating Revision No. 113-NFPA 70-2022 [Definition: Cable, Optical Fiber, Abandoned. (Abandoned Opt...]

~~**Cable, Optical Fiber, Abandoned. (Abandoned Optical Fiber Cable)**~~

~~Installed optical fiber cable that is not terminated at equipment other than a connector and not identified for future use with a tag. (770) (CMP-16)~~

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Fri Feb 11 11:41:55 EST 2022

Committee Statement

Committee Statement: There are multiple definitions and in accordance with the NEC Style Manual section 2.2.2.4, this definition was deleted.

Second Correlating Revision No. 115-NFPA 70-2022 [Definition: Cell Line.]

Cell Line.

An assembly of electrically interconnected electrolytic cells supplied by a source of direct-current power. ~~(668)~~ (CMP-12)

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Fri Feb 11 11:49:14 EST 2022

Committee Statement

Committee Statement: The defined term is used in more than one article and the Article reference is removed, to comply with the NEC Style Manual 2.2.2.3.2.

Second Correlating Revision No. 97-NFPA 70-2022 [Definition: Class 4 Circuit.]

Class 4 Circuit.

The portion of the wiring system between the load side of a Class 4 transmitter and the Class 4 receiver or Class 4 utilization equipment, as appropriate. Due to the active monitoring and control of the ~~power transmitted~~ voltage and current provided , a Class 4 circuit ~~is not considered a possible ignition source, and it minimizes the risk of~~ considers safety from a fire initiation standpoint and provides acceptable protection from electric shock. (726) (CMP-3)

Informational Note: A Class 4 circuit is also commonly referred to as a fault-managed power circuit.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Thu Feb 10 09:08:45 EST 2022

Committee Statement

Committee Statement: A new Informational Note is added to the definition for “Class 4 Circuits” to recognize its association with “Fault-Managed Power Circuits”.

SR-8626-NFPA 70-2021

Second Correlating Revision No. 138-NFPA 70-2022 [Definition: Corrosive Environment Swimming Pools, Fountains...]

Corrosive Environment ~~Swimming Pools, Fountains, and Similar Installations~~ .

Areas or enclosures without adequate ventilation, where electrical equipment is located and pool sanitation chemicals are stored, handled, or dispensed . (680) (CMP-17).

Informational Note No. 1: See *Advisory: Swimming Pool Chemical: Chlorine*, OSWER 90-008.1, June 1990, available from the EPA National Service Center for Environmental Publications (NSCEP) as sanitation chemicals and pool water are considered to pose a risk of corrosion (gradual damage or destruction of materials) due to the presence of oxidizers (e.g., calcium hypochlorite, sodium hypochlorite, bromine, chlorinated isocyanurates) and chlorinating agents that release chlorine when dissolved in water.

Informational Note No. 2: See ANSI/APSP-11, *Standard for Water Quality in Public Pools and Spas*, ANSI/ASHRAE 62.1, Table 6-4 Minimum Exhaust Rates, and ~~Section 324 of the~~ *2021 International Swimming Pool and Spa Code (ISPSC)*, Section 324, including associated definitions and requirements concerning adequate ventilation of indoor spaces such as equipment and chemical storage rooms, which can reduce the likelihood of the accumulation of corrosive vapors. Chemicals such as chlorine cause severe corrosive and deteriorating effects on electrical connections, equipment, and enclosures when stored and kept in the same vicinity.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 15 09:45:36 EST 2022

Committee Statement

Committee Statement: The phrase (as applied to …..) is being deleted due to this term only applies to the article referenced at the end of the defined term. This action is in accordance to the NEC Style Manual section 2.2.2.3.2. The reference structure of the third standard in Informational Note No. 2 was revised in accordance with the NEC Style Manual 4.1.3.

Committee Comment No. 8342-NFPA 70-2021 [Definition: Corrosive Environment — Swimming Pools, Fountai...]

Second Correlating Revision No. 139-NFPA 70-2022 [Definition: Critical Operations Areas, Designated (DCOA). (...]

Critical Operations Areas, Designated (DCOA). (Designated Critical Operations Areas) ~~(DCOA)~~

Areas within a facility or site designated as requiring critical operations power. (CMP-13)

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 15 09:51:20 EST 2022

Committee Statement

Committee Statement: The acronym is to be located after the defined term and not after the searchable term, in accordance with the NEC Style Manual 3.2.3.

SR-7894-NFPA 70-2021

Second Correlating Revision No. 68-NFPA 70-2022 [Definition: DC-to-DC Converter Circuit.]

Converter Circuit, DC-to-DC. (DC-to-DC Converter Circuit.)

The dc circuit conductors ~~cond nected~~ connected to the output of a dc-to-dc converter. (CMP-4)

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Wed Feb 09 09:21:41 EST 2022

Committee Statement

Committee Statement: The Correlating Committee corrects the definition for grammar and clarity.

Second Revision No. 8706-NFPA 70-2021 [Definition: DC-to-DC Converter Circuit.]

Second Correlating Revision No. 140-NFPA 70-2022 [Definition: Dust-Ignitionproof.]

Dust-Ignitionproof.

Equipment enclosed in a manner that excludes dusts and does not permit arcs, sparks, or heat otherwise generated or liberated inside of the enclosure to cause ignition of exterior accumulations or atmospheric suspensions of a specified dust on or in the vicinity of the enclosure. (CMP-14)

Informational Note No. 1: See ANSI/UL 1203~~-2015~~ , *Explosion-Proof and Dust-Ignition-Proof Electrical Equipment for Use in Hazardous (Classified) Locations*, for additional information on dust-ignitionproof enclosures.

Informational Note No. 2: ~~Dust-ignitionproof enclosures are sometimes additionally marked Type 9 in accordance with NEMA 250-2014~~ See NEMA 250 , *Enclosures for Electrical Equipment (1000 Volts ~~Minimum~~ Maximum)*, for additional information on dust-ignitionproof enclosures that are sometimes marked additionally marked Type 9 .

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 15 09:54:57 EST 2022

Committee Statement

Committee Statement: The structure of Informational Note No. 2 was revised in accordance with the NEC Style Manual 3.1.3.1.

SR-7617-NFPA 70-2021

Second Correlating Revision No. 141-NFPA 70-2022 [Definition: Dusttight.]

Dusttight.

Enclosures constructed so that dust will not enter under specified test conditions. (CMP-14)

Informational Note No. 1: See ANSI/UL 121201~~-2017~~ , *Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations*, for additional information.

Informational Note No. 2: ~~Enclosure Types 3, 3X, 3S, 3SX, 4, 4X, 5, 6, 6P, 12, 12K, and 13, in accordance with~~ See NEMA 250, *Enclosures for Electrical Equipment (1000 Volts ~~Minimum~~ Maximum),* and ANSI/UL 50E~~-2015~~ , *Enclosures for Electrical Equipment, Environmental Considerations*, for additional information on enclosure Types 3, 3X, 3S, 3SX, 4, 4X, 5, 6, 6P, 12, 12K, and 13 that are considered dusttight.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 15 09:58:45 EST 2022

Committee Statement

Committee Statement: The structure of Informational Note No. 2 was revised in accordance with the NEC Style Manual 3.1.3.1.

SR-7618-NFPA 70-2021

Second Correlating Revision No. 164-NFPA 70-2022 [Definition: Equipotential Plane.]

Equipotential Plane ~~(as applied to natural and artificially made bodies of water)~~ .

Conductive parts bonded together to reduce voltage gradients in a designated area. (682) (CMP-17)

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Wed Feb 16 01:19:08 EST 2022

Committee Statement

Committee Statement: The phrase "as applied to natural and artificially made bodies of water" is deleted as redundant because the Article 682 attribution assigns this definition to apply only to that article in accordance with NEC Style Manual 2.2.2.3.2.

Second Revision No. 8371-NFPA 70-2021 [Definition: Equipotential Plane.]

Second Correlating Revision No. 142-NFPA 70-2022 [Definition: Explosionproof Equipment.]

Explosionproof Equipment.

Equipment enclosed in a case that is capable of withstanding an explosion of a specified gas or vapor that might occur within it, that is capable of preventing the ignition of a specified gas or vapor surrounding the enclosure by sparks, flashes, or explosion of the gas or vapor within, and that operates at such an external temperature that a surrounding flammable atmosphere will not be ignited. (CMP-14)

Informational Note No. 1: See ANSI/UL 1203~~-2015~~ , *Explosion-Proof and Dust-Ignition-Proof Electrical Equipment for Use in Hazardous (Classified) Locations*, for additional information.

Informational Note No. 2: ~~Explosionproof enclosures are sometimes additionally marked Type 7 in accordance with~~ See NEMA 250, *Enclosures for Electrical Equipment (1000 Volts ~~Minimum~~ Maximum)*, for additional information on explosionproof enclosures that are sometimes additionally marked Type 7 .

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 15 10:05:12 EST 2022

Committee Statement

Committee Statement: The structure of Informational Note No. 2 was revised in accordance with the NEC Style Manual 3.1.3.1.

SR-7623-NFPA 70-2021

Second Correlating Revision No. 143-NFPA 70-2022 [Definition: Exposed Conductive Surfaces (as applied to heal...]

Exposed Conductive Surfaces ~~(as applied to health care facilities)~~ .

Those surfaces that are capable of carrying electric current and that are unprotected, uninsulated, unenclosed, or unguarded, permitting personal contact. [**99:**3.3.54] (517) (CMP-15)

Informational Note: Paint, anodizing, and similar coatings are not considered suitable insulation, unless they are listed for such use.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 15 10:17:32 EST 2022

Committee Statement

Committee Statement: The phrase (as applied to …..) is being deleted due to this term only applies to the article referenced at the end of the defined term. This action is in accordance to the NEC Style Manual section 2.2.2.3.2.

SR-8557-NFPA 70-2021

Second Correlating Revision No. 98-NFPA 70-2022 [Definition: Fault-Managed Power (FMP).]

Fault-Managed Power (FMP).

A powering system that monitors for faults and controls ~~power~~ current delivered to ensure fault energy is limited. ~~The monitoring and control systems differentiate them from electric light and power circuits; therefore, alternative requirements to those of Chapters 1 through 4 are given regarding minimum wire sizes, ampacity adjustment and correction factors, overcurrent protection, insulation requirements, and wiring methods and materials.~~ (726) (CMP-3)

Informational Note No. 1: The monitoring and control systems differentiate ~~them~~ fault-managed power from electric light and power circuits; therefore, alternative requirements to those of Chapters 1 through 4 are given regarding minimum wire sizes, ampacity adjustment and correction factors, overcurrent protection, insulation requirements, and wiring methods and materials.

Informational Note No. 2: A fault-managed power circuit is also commonly referred to as a Class 4 circuit.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Thu Feb 10 09:11:06 EST 2022

Committee Statement

Committee Statement: A new Informational Note is added to the definition for “Fault-Managed Power” to recognize its association with “Class 4 Circuits”.

SR-8638-NFPA 70-2021

Second Correlating Revision No. 93-NFPA 70-2022 [Definition: Fire Alarm Circuit Integrity (CI) Cable.]

~~**Cable, Fire Alarm Circuit Integrity (CI). [Fire Alarm Circuit Integrity (CI) Cable]**~~

~~Cable used in fire alarm systems to ensure continued operation of critical circuits during a specified time under fire conditions. (CMP-3)~~

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Wed Feb 09 11:57:10 EST 2022

Committee Statement

Committee Statement: The definition of Circuit Integrity Cable also includes Fire Alarm Circuit Integrity Cable and there is no need to have a unique definition for Fire Alarm Circuit Integrity Cable. Even NFPA 72 uses Circuit Integrity Cable not “Fire Alarm” Circuit Integrity Cable.

Second Revision No. 8625-NFPA 70-2021 [Definition: Fire Alarm Circuit Integrity (CI) Cable.]

Second Correlating Revision No. 144-NFPA 70-2022 [Definition: Flat Conductor Cable, Type FCC Cable.]

Cable, Flat Conductor ~~Cable,~~ (Type FCC). (Flat Conductor Cable)

Three or more separate flat copper conductors placed horizontally edge-to-edge and ~~separated and~~ enclosed within an insulating assembly. (324) (CMP-6)

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 15 10:21:27 EST 2022

Committee Statement

Committee Statement: The definition structure is grouped by the base term "cable", in accordance with the NEC Style Manual 2.2.2.3. The acronym (Type FCC) follows the defined term in parentheses. These changes were made in accordance with the NEC Style Manual 3.2.3.

SR-8221-NFPA 70-2021

Second Correlating Revision No. 117-NFPA 70-2022 [Definition: Ground-Fault Circuit Interrupter, Special Purpo...]

Ground-Fault Circuit Interrupter, Special Purpose (SPGFCI). (Special Purpose Ground-Fault Circuit Interrupter)

A device intended for the detection of ground-fault currents, used in circuits with voltage to ground greater than 150 volts, that functions to de-energize a circuit or portion of a circuit within an established period of time when a ground-fault current exceeds the values established for Class C, D, or E devices. (CMP-2)

Informational Note: See UL 943C, *Outline of Investigation for Special Purpose Ground-Fault Circuit Interrupters* , for information on Classes C, D, or E special purpose ground-fault circuit interrupters.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Fri Feb 11 11:56:25 EST 2022

Committee Statement

Committee Statement: The last sentence in the defined term and the Informational Note was revised by changing the word "and" to "or" for clarity. The definition "Ground-Fault Circuit Interrupter, Special Purpose (SPGFCI)" is assigned to CMP-2.

SR-8339-NFPA 70-2021

Second Correlating Revision No. 69-NFPA 70-2022 [Definition: Ground-Fault Detector Interrupter (GFDI).]

Ground-Fault Detector-Interrupter, dc (GFDI).

A device that provides protection for PV system dc circuits by detecting a ground fault ~~protection for PV dc circuits~~ and could interrupt the fault path in the dc circuit . (690) (CMP-4)

Informational Note: See UL 1741, *Standard for Inverters, Converters, Controllers and Interconnection System Equipment for Use with Distributed Energy Resources* , ~~for~~ and UL 62109, *Standard for Power Converters for use in Photovoltaic Power Systems* , for further information on GFDI equipment.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Wed Feb 09 09:23:07 EST 2022

Committee Statement

Committee Statement: The Correlating Committee corrects the definition in accordance with 4.2 of the NEC Style Manual. The informational note was revised to be consistent with the reference titles to industry standards and remove an extraneous period punctuation.

Committee Comment No. 8235-NFPA 70-2021 [Definition: Ground-Fault Detector Interrupter (GFDI).]

Second Correlating Revision No. 145-NFPA 70-2022 [Definition: Grounding Conductor, Equipment. (Equipment Grou...]

~~Grounded~~ Grounding Conductor, Equipment (EGC). (Equipment Grounding Conductor) ~~(EGC)~~

A conductive path(s) that is part of an effective ground-fault current path and connects normally non-current-carrying metal parts of equipment together and to the system grounded conductor or to the grounding electrode conductor, or both. (CMP-5)

Informational Note No. 1: It is recognized that the equipment grounding conductor also performs bonding.

Informational Note No. 2: See 250.118 for a list of acceptable equipment grounding conductors.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 15 10:28:26 EST 2022

Committee Statement

Committee Statement: The acronym follows the defined term in parentheses in accordance with the NEC Style Manual 3.2.3.

SR-8030-NFPA 70-2021

Second Correlating Revision No. 118-NFPA 70-2022 [Definition: In Sight From (Within Sight From, Within Sight).]

In Sight From (Within Sight From~~,~~) (Within Sight).

~~Where this *Code* specifies that one equipment shall be "in sight from," "within sight from," or "within sight of," and so forth, another equipment, the specified equipment is to be~~ Equipment that is visible and not more than 15 m (50 ft) distant from ~~the~~ other equipment is *in sight from* that other equipment . (CMP-1)

Informational Note: See 110.29 for additional information.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Fri Feb 11 11:58:23 EST 2022

Committee Statement

Committee Statement: An Informational Note is added to direct the users to 110.29 where the requirement is located.

The two alternate terms are separated with parentheses in accordance with the NEC Style Manual 2.2.2.5.

SR-7603-NFPA 70-2021

Second Correlating Revision No. 146-NFPA 70-2022 [Definition: Limited Finishing Workstation.]

Limited Finishing Workstation.

~~An~~ A power-ventilated apparatus that is capable of confining the vapors, mists, residues, dusts, or deposits that are generated by a limited spray application process ~~but does not meet the requirements of~~ . Such apparatus is not a spray booth or spray room, as herein defined. [**33:**~~3.3.18.1~~ 3.3.23.1] ~~(516)~~ (CMP-14)

Informational Note: See ~~Section 14.3 of~~ NFPA 33, *Standard for Spray Application Using Flammable or Combustible Materials*, Section 14.3, for information on limited finishing workstations.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 15 10:34:48 EST 2022

Committee Statement

Committee Statement: The definition cannot contain the defined term and is revised in accordance with the NEC Style Manual.

SR-7630-NFPA 70-2021

Second Correlating Revision No. 147-NFPA 70-2022 [Definition: Manufactured Home.]

Manufactured Home.

A structure, transportable in one or more sections, which in the traveling mode is 2.4 m (8 ft) or more in width or 12.2 m (40 ft) or more in length, or when erected on site is 29.77 m^2 (320 ft^2) or more is built on a permanent chassis and is designed to be used as a dwelling with or without a permanent foundation, whether or not connected to the utilities, and includes plumbing, heating, air conditioning, and electrical systems contained therein. The term ~~*manufactured home*~~ includes any structure that meets all the requirements of this paragraph except the size requirements and with respect to which the manufacturer voluntarily files a certification required by the regulatory agency. Calculations used to determine the number of square meters (square feet) in a structure are based on the structure's exterior dimensions and include all expandable rooms, cabinets, and other projections containing interior space, but do not include bay windows. [**501:**~~1.2.13~~ 1.2.12] ~~For the purpose of this *Code* and unless otherwise indicated, the term mobile home includes manufactured homes and excludes park trailers defined in 552.4~~ . (CMP-7)

Informational Note No. 1: Unless otherwise indicated, the term *mobile home* includes manufactured home and excludes park trailers.

Informational Note No. 2: See the applicable building code for definition of the term *permanent foundation*.

Informational Note No. 3: See 24 CFR Part 3280, *Manufactured Home Construction and Safety Standards, of the Federal Department of Housing and Urban Development*, for additional information on the definition.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 15 10:45:57 EST 2022

Committee Statement

Committee Statement: The extracted reference has been corrected for the 2022 edition of NFPA 501 to 1.2.12. The Informational Note No. 1 reference to 552.4 is removed because that section does not define park trailers.

Committee Comment No. 8530-NFPA 70-2021 [Definition: Manufactured Home.]

Second Correlating Revision No. 119-NFPA 70-2022 [Definition: Microgrid System.]

Microgrid ~~System~~ .

~~A system~~ An electric power system capable of operating in island mode and capable of being interconnected to an electric power production and distribution network or other primary ~~power~~ source ~~capable of~~ while operating in ~~parallel~~ interactive mode , ~~that~~ which includes the ability to disconnect from ~~the~~ and reconnect to a primary source and operate in island mode. (CMP-4)

Informational Note No. 1: ~~The application of Article 705 to microgrid systems is limited by the exclusions in 90.2(B)(5) related to electric utilities. Additional information may be found in IEEE 1547, IEEE 2030.7, and IEEE 2030.8.~~ See IEEE 1547, *IEEE Standard for Interconnection and Interoperability of Distributed Energy Resources with Associated Electric Power Systems Interface* ; IEEE 2030.7, *IEEE Standard for the Specification of Microgrid Controllers* ; IEEE 2030.8, *IEEE Standard for the Testing of Microgrid Controllers* ; and UL1008B, *Outline for Source Interconnection* , for additional information about microgrids.

Informational Note No. 2: Examples of power sources in microgrids include such items as photovoltaic systems, generators, fuel cell systems, wind electric systems, energy storage systems, electric vehicles that are used as a source of supply, and electrical power conversion from other energy sources.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Fri Feb 11 12:09:13 EST 2022

Committee Statement

Committee Statement: In Informational Note No. 1 the "Std" following IEEE is deleted for consistency with how IEEE standards are referenced in other parts of the Code.

SR-8445-NFPA 70-2021

Second Correlating Revision No. 148-NFPA 70-2022 [Definition: Microgrid Systems, Health Care. (Health Care Mi...]

Microgrid, Health Care~~.~~ (Health Care Microgrid System). (Health Care Microgrid ~~System~~)

A group of interconnected loads and distributed energy resources within clearly defined boundaries that acts as a single controllable entity with respect to the utility. [**99:**3.3.75] (517) (CMP-15)

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 15 13:28:53 EST 2022

Committee Statement

Committee Statement: The defined term is changed in accordance with the NEC Style Manual 3.2.7.4. for extracted material. The alternate term "Health Care Microgrid System" was added in parentheses after the searchable term in accordance with NEC Style Manual 2.2.2.5.

Committee Comment No. 8552-NFPA 70-2021 [Definition: Health Care Microgrid.]

Second Correlating Revision No. 149-NFPA 70-2022 [Definition: Mobile Home.]

Mobile Home.

A factory-assembled structure or structures transportable in one or more sections that are built on a permanent chassis and designed to be used as a dwelling without a permanent foundation where connected to the required utilities and that include the plumbing, heating, air-conditioning, and electrical systems contained therein. (CMP-7)

~~For the purpose of this *Code* and unless otherwise indicated, the term *mobile home* includes manufactured homes. (CMP-7)~~

Informational Note: Unless otherwise indicated, the term *mobile home* includes manufactured home and excludes park trailers.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 15 13:40:48 EST 2022

Committee Statement

Committee Statement: In the informational note the reference to 552.4 is removed because that section does not define park trailers.

Committee Comment No. 8573-NFPA 70-2021 [Definition: Mobile Home.]

Second Correlating Revision No. 150-NFPA 70-2022 [Definition: Non-Power-Limited Fire Alarm Circuit (NPLFA).]

Fire Alarm Circuit, Non-Power-Limited (NPLFA). (Non-Power-Limited Fire Alarm Circuit) ~~(NPLFA).~~

A fire alarm circuit powered by a source that ~~complies with the requirements of 760.41 and 760.43~~ is not power limited . (CMP-3)

Informational Note: See 760.41 and 760.43 for requirements for non-power-limited fire alarm circuits.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 15 14:01:37 EST 2022

Committee Statement

Committee Statement: The definition structure is grouped by the base term "Fire Alarm Circuit", in accordance with the NEC Style Manual 2.2.2.3. The article number is removed because the term is used in more than one article in accordance with the NEC Style Manual 2.2.2.3.2

Committee Comment No. 8701-NFPA 70-2021 [Definition: Non-Power-Limited Fire Alarm Circuit (NPLFA).]

Second Correlating Revision No. 121-NFPA 70-2022 [Definition: Nonincendive Circuit.]

Nonincendive Circuit.

A circuit, other than field wiring, in which any arc or thermal effect produced under intended operating conditions of the equipment, is not capable, under specified test conditions, of igniting the flammable gas–air, vapor–air, or dust–air mixture. (CMP-14)

Informational Note: See ANSI/UL 121201~~-2017~~ , *Nonincendive Electrical Equipment for Use in Class I and II, Division 2, and Class III, Divisions 1 and 2 Hazardous (Classified) Locations*, for ~~further~~ additional information.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Fri Feb 11 12:12:57 EST 2022

Committee Statement

Committee Statement: This action is for consistency with other actions taken by CMP 14 throughout informational notes in articles under their purview.

SR-7635-NFPA 70-2021

Second Correlating Revision No. 152-NFPA 70-2022 [Definition: Optical Fiber Cable, Protected. (Protected Opti...]

Cable, Optical Fiber, Protected. (Protected Optical Fiber Cable) .

Optical fiber cable protected from releasing optical radiation into the atmosphere during normal operating conditions and foreseeable malfunctions by additional armoring, conduit, cable tray, or raceway. (CMP-14)

Informational Note: See ANSI/UL 60079-28-~~2017~~ , *Explosive Atmospheres — Part 28: Protection of Equipment and Transmission Systems Using Optical Radiation*, for additional information .

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 15 14:33:01 EST 2022

Committee Statement

Committee Statement: The definition structure is grouped by the base term "cable", and the modifier being "optical fiber" in accordance with the NEC Style Manual 2.2.2.3.

SR-7652-NFPA 70-2021

Second Correlating Revision No. 116-NFPA 70-2022 [Definition: Outdoor Overhead Conductors.]

~~**Outdoor Overhead Conductors.**~~

~~Single conductors, insulated, covered, or bare, installed outdoors on support structures in free air. (CMP-3)~~

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Fri Feb 11 11:51:00 EST 2022

Committee Statement

Committee Statement: There are multiple definitions and in accordance with the NEC Style Manual section 2.2.2.4, this definition was deleted.

Second Correlating Revision No. 154-NFPA 70-2022 [Definition: Power-Limited Fire Alarm Circuit (PLFA).]

Fire Alarm Circuit, Power-Limited (PLFA). (Power-Limited Fire Alarm Circuit) ~~(PLFA).~~

A fire alarm circuit powered by a power-limited source ~~that complies with the requirements of 760.121~~ . (CMP-3)

Informational Note: See 760.121 for requirements on power-limited fire alarm circuits.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 15 14:43:19 EST 2022

Committee Statement

Committee Statement: The definition structure is grouped by the base term "fire alarm circuit", in accordance with the NEC Style Manual 2.2.2.3. The article number is removed because the term is used in more than one article in accordance with the NEC Style Manual 2.2.2.3.2

SR-8702-NFPA 70-2021

Second Correlating Revision No. 156-NFPA 70-2022 [Definition: Production Areas.]

Production Areas.

Areas where portable electrical equipment is used to implement the capture of images. (530) (CMP-15)

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 15 14:55:24 EST 2022

Committee Statement

Committee Statement: The defined term is revised to remove the reference to an entire article in accordance with the NEC Style Manual, 4.1.4.

SR-8629-NFPA 70-2021

Second Correlating Revision No. 157-NFPA 70-2022 [Definition: Recreational Vehicle (RV) (Camping Trailer) (Mo...]

Recreational Vehicle (RV) (Camping Trailer) (Motor Home) (Travel Trailer) (Truck Camper) .

A vehicle or slide-in camper that is primarily designed as temporary living quarters for recreational, camping, or seasonal use; has its own motive power or is mounted on or towed by another vehicle; is regulated by the National Highway Traffic Safety Administration as a vehicle or vehicle equipment; does not require a special highway use permit for operation on the highways; and can be easily transported and set up on a daily basis by an individual. [**1192:**~~3.3.53~~ 3.3.52] (551) (CMP-7)

Informational Note: ~~The basic entities are travel trailer, camping trailer, truck camper, and motor home as referenced in~~ See NFPA 1192-~~2021~~ , *Standard on Recreational Vehicles*. ~~See 3.3.52, *Recreational Vehicle* , and A.3.3.52 of NFPA 1192~~ , Informative Annex A, for product types and definitions for motor homes and towable recreational vehicles .

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 15 15:03:04 EST 2022

Committee Statement

Committee Statement: The reference to “Annex A” that is presently located before the referenced standard number is relocated to after the standard title for consistency and in accordance with the NEC Style Manual 4.1.3. The word "informative” is added prior to the word “annex” in the note.

SR-8556-NFPA 70-2021

Second Correlating Revision No. 158-NFPA 70-2022 [Definition: Remote Location.]

Location, Remote. (Remote Location)

A location, other than a motion picture or television studio, where a production is filmed or recorded. (530) (CMP-15)

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 15 15:08:03 EST 2022

Committee Statement

Committee Statement: The definition structure is grouped by the base term in accordance with the NEC Style Manual 2.2.2.3. The searchable term is added in parentheses in accordance with the NEC Style Manual 2.2.2.3.1.

SR-8627-NFPA 70-2021

Second Correlating Revision No. 122-NFPA 70-2022 [Definition: Stand Lamp (Work Light).]

~~**Stand Lamp (Work Light).**~~

~~A portable stand that contains a general-purpose luminaire or lampholder with guard for the purpose of providing general illumination in the studio or stage. (530) (CMP-15)~~

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Fri Feb 11 13:48:51 EST 2022

Committee Statement

Committee Statement: There are multiple definitions and in accordance with the NEC Style Manual section 2.2.2.4, this definition was deleted.

Second Correlating Revision No. 159-NFPA 70-2022 [Definition: Stand Lamp (Work Light).]

Stand Lamp ~~(Work Light)~~ .

A portable stand that contains a general-purpose luminaire or lampholder with guard for the purpose of providing general illumination on ~~the~~ a stage, in an auditorium, or in ~~the auditorium~~ a studio . (520) (CMP-15)

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 15 15:11:53 EST 2022

Committee Statement

Committee Statement: This version of the "stand lamp" is retained, the reference to Article 530 is removed in accordance with NEC Style Manual, 2.2.2.3.2 because the term is used in only Article 520.

Committee Comment No. 8542-NFPA 70-2021 [Definition: Stand Lamp (Work Light).]

Second Correlating Revision No. 151-NFPA 70-2022 [New Definition after Definition: Motor Control Center.]

Motion Picture Studio (Television Studio).

A building, group of buildings, other structures, and outdoor areas designed, constructed, permanently altered, designated, or approved for the purpose of motion picture or television production. (530) (CMP-15)

~~**Motion Picture and/or Television Studio Sound Stage.**~~

~~A building or portion of a building, usually insulated from outside noise and natural light, designed, constructed, or altered for the purpose of image capture. (530) (CMP-15)~~

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 15 14:14:31 EST 2022

Committee Statement

Committee Statement: The defined term is changed to "Motion Picture Studio" and the alternate term "Television Studio" is added in accordance with the NEC Style Manual 2.2.2.5. The words “and/or” are also deleted. There are multiple definitions and in accordance with the NEC Style Manual section 2.2.2.4, the definition of "motion picture and/or television studio sound stage" is deleted. There are no references to the term in Article 530.

Committee Comment No. 8637-NFPA 70-2021 [New Definition after Definition: Motor Control Center.]

Second Correlating Revision No. 24-NFPA 70-2022 [Section No. 110.3(B)]

(B) Installation and Use.

Equipment that is listed, labeled, or both, or identified for a use shall be installed and used in accordance with any instructions included in the listing ~~or~~ , labeling, or identification .

Informational Note: The installation and use instructions may be provided in the form of printed material, quick response (QR) code, or the address on the internet where users can download the required instructions.

~~Informational Note No. 2: The installation and use instructions may not reduce the requirements in the *Code* .~~

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 12:06:08 EST 2022

Committee Statement

Committee Statement: The new informational note contains a requirement contrary to the rules in the NEC Style Manual 3.1.3.

Second Revision No. 7668-NFPA 70-2021 [Section No. 110.3(B)]

Second Correlating Revision No. 25-NFPA 70-2022 [Section No. 110.26]

110.26 Spaces About Electrical Equipment.

~~Access and~~ Working space, and access to and egress from working space, shall be provided and maintained about all electrical equipment to permit ready and safe operation and maintenance of such equipment. Open equipment doors shall not impede access to and egress from the working space. Access or egress is impeded if one or more simultaneously opened equipment doors restrict working space access to be less than 610 mm (24 in.) wide and 2.0 m (6 ½ ft) high.

(A) Working Space.

Working space for equipment operating at 1000 volts, nominal, or less to ground and likely to require examination, adjustment, servicing, or maintenance while energized shall comply with the dimensions of 110.26(A)(1), (A)(2), (A)(3), and (A)(4) or as required or permitted elsewhere in this *Code*.

Informational Note: See NFPA *70E*-2021, *Standard for Electrical Safety in the Workplace*, for guidance, such as determining severity of potential exposure, planning safe work practices including establishing an electrically safe work condition, arc flash labeling, and selecting personal protective equipment.

(1) Depth of Working Space.

The depth of the working space in the direction of live parts shall not be less than that specified in Table 110.26(A)(1) unless the requirements of 110.26(A)(1)(a), (A)(1)(b), or (A)(1)(c) are met. Distances shall be measured from the exposed live parts or from the enclosure or opening if the live parts are enclosed.

Table 110.26(A)(1) Working Spaces

Nominal Voltage to Ground	Minimum Clear Distance		
	Condition 1	Condition 2	Condition 3
0–150	900 mm (3 ft)	900 mm (3 ft)	900 mm (3 ft)
151–600	900 mm (3 ft)	1.0 m (3 ft 6 in.)	1.2 m (4 ft)
601–1000	900 mm (3 ft)	1.2 m (4 ft)	1.5 m (5 ft)

Note: Where the conditions are as follows:

Condition 1 — Exposed live parts on one side of the working space and no live or grounded parts on the other side of the working space, or exposed live parts on both sides of the working space that are effectively guarded by insulating materials.

Condition 2 — Exposed live parts on one side of the working space and grounded parts on the other side of the working space. Concrete, brick, or tile walls shall be considered as grounded.

Condition 3 — Exposed live parts on both sides of the working space.

(a) *Dead-Front Assemblies.* Working space shall not be required in the back or sides of assemblies, such as dead-front switchboards, switchgear, or motor control centers, where all connections and all renewable or adjustable parts, such as fuses or switches, are accessible from locations other than the back or sides. Where rear access is required to work on nonelectrical parts on the back of enclosed equipment, a minimum horizontal working space of 762 mm (30 in.) shall be provided.

(b) *Low Voltage.* By special permission, smaller working spaces shall be permitted where all exposed live parts operate at not greater than 30 volts rms, 42 volts peak, or 60 volts dc.

(c) *Existing Buildings.* In existing buildings where electrical equipment is being replaced, Condition 2 working clearance shall be permitted between dead-front switchboards, switchgear, enclosed panelboards, or motor control centers located across the aisle from each other where conditions of maintenance and supervision ensure that written procedures have been adopted to prohibit equipment on both sides of the aisle from being open at the same time and qualified persons who are authorized will service the installation.

(2) Width of Working Space.

The width of the working space in front of the electrical equipment shall be the width of the equipment or 762 mm (30 in.), whichever is greater. In all cases, the work space shall permit at least a 90-degree opening of equipment doors or hinged panels.

(0)

(0) ~~Open equipment doors shall not impede the entry to or egress from the working space.~~

(3) Height of Working Space.

The work space shall be clear and extend from the grade, floor, or platform to a height of 2.0 m (6½ ft) or the height of the equipment, whichever is greater. Within the height requirements of this section, other equipment or support structures, such as concrete pads, associated with the electrical installation and located above or below the electrical equipment shall be permitted to extend not more than 150 mm (6 in.) beyond the front of the electrical equipment.

Exception No. 1: On battery systems mounted on open racks, the top clearance shall comply with 480.10(D).

Exception No. 2: In existing dwelling units, service equipment or enclosed panelboards that do not exceed 200 amperes shall be permitted in spaces where the height of the working space is less than 2.0 m (6½ ft).

Exception No. 3: Meters that are installed in meter sockets shall be permitted to extend beyond the other equipment. The meter socket shall be required to follow the rules of this section.

(4) Limited Access.

Where equipment operating at 1000 volts, nominal, or less to ground and likely to require examination, adjustment, servicing, or maintenance while energized is required by installation instructions or function to be located in a space with limited access, all of the following shall apply:

(1) Where equipment is installed above a lay-in ceiling, there shall be an opening not smaller than 559 mm × 559 mm (22 in. × 22 in.), or in a crawl space, there shall be an accessible opening not smaller than 559 mm × 762 mm (22 in. × 30 in.).

(2) The width of the working space shall be the width of the equipment enclosure or a minimum of 762 mm (30 in.), whichever is greater.

(3) All enclosure doors or hinged panels shall be capable of opening a minimum of 90 degrees.

(4) The space in front of the enclosure shall comply with the depth requirements of Table 110.26(A)(1) and shall be unobstructed to the floor by fixed cabinets, walls, or partitions. Space reductions in accordance with 110.26(A)(1)(b) shall be permitted. The maximum height of the working space shall be the height necessary to install the equipment in the limited space. A horizontal ceiling structural member or access panel shall be permitted in this space provided the location of weight-bearing structural members does not result in a side reach of more than 150 mm (6 in.) to work within the enclosure.

(5) Separation from High-Voltage Equipment.

Where switches, cutouts, or other equipment operating at 1000 volts, nominal, or less are installed in a vault, room, or enclosure where there are exposed live parts or exposed wiring operating over 1000 volts, nominal, the high-voltage equipment shall be effectively separated from the space occupied by the low-voltage equipment by a suitable partition, fence, or screen.

Detail SR-7803

(6) Grade, Floor, or Working Platform.

The grade, floor, or platform in the required working space ~~in 110.26(A)(1), (A)(2), (A)(3), and (A)(5)~~ shall be kept clear, and the floor, grade, or platform in the working space shall be as level and flat as practical for the entire required depth and width of the working space.

(B) Clear Spaces.

Working space required by this section shall not be used for storage. When normally enclosed live parts are exposed for inspection or servicing, the working space, if in a passageway or general open space, shall be suitably guarded.

(C) Entrance to and Egress from Working Space.

(1) Minimum Required.

At least one entrance of sufficient area shall be provided to give access to and egress from working space about electrical equipment.

(2) Large Equipment.

For large equipment that contains overcurrent devices, switching devices, or control devices, there shall be one entrance to and egress from the required working space not less than 610 mm (24 in.) wide and 2.0 m (6½ ft) high at each end of the working space. This requirement shall apply to either of the following conditions:

(1) For equipment rated 1200 amperes or more and over 1.8 m (6 ft) wide

(2) For service disconnecting means installed in accordance with 230.71(B) where the combined ampere rating is 1200 amperes or more and where the combined width is over 1.8 m (6 ft)

A single entrance to and egress from the required working space shall be permitted where either of the conditions in 110.26(C)(2)(a) or (C)(2)(b) is met.

(a) *Unobstructed Egress.* Where the location permits a continuous and unobstructed way of egress travel, a single entrance to the working space shall be permitted.

(b) *Extra Working Space.* Where the depth of the working space is twice that required by 110.26(A)(1), a single entrance shall be permitted. It shall be located such that the distance from the equipment to the nearest edge of the entrance is not less than the minimum clear distance specified in Table 110.26(A)(1) for equipment operating at that voltage and in that condition.

(3) Personnel Doors.

Where equipment rated 800 amperes or more that contains overcurrent devices, switching devices, or control devices is installed and there is a personnel door(s) intended for entrance to and egress from the working space less than 7.6 m (25 ft) from the nearest edge of the working space, the door(s) shall open at least 90 degrees in the direction of egress and be equipped with listed panic hardware or listed fire exit hardware.

Informational Note: See UL 305, *Standard For ~~Safety For~~ Panic Hardware*, for additional information on panic hardware, and see UL 10C, *Standard for Safety for Positive Pressure Fire Tests of Door Assemblies*, for additional information.

~~See UL 305, *Standard For Panic Hardware*, for fire exit hardware, and see UL 10C, *Standard for Safety for Positive Pressure Fire Tests of Door Assemblies*.~~

(D) Illumination.

Illumination shall be provided for all working spaces about service equipment, switchboards, switchgear, enclosed panelboards, or motor control centers installed indoors. Control by automatic means shall not be permitted to control all illumination within the working space. Additional lighting outlets shall not be required where the work space is illuminated by an adjacent light source or as permitted by 210.70(A)(1), Exception No. 1, for switched receptacles.

(E) Dedicated Equipment Space.

All service equipment, switchboards, switchgear, panelboards, and motor control centers shall be located in dedicated spaces and protected from damage.

Exception: Control equipment that by its very nature or because of other rules of the Code must be adjacent to or within sight of its operating machinery shall be permitted in those locations.

(1) Indoor.

Indoor installations shall comply with 110.26(E)(1)(a) through (E)(1)(d).

(a) *Dedicated Electrical Space.* The space equal to the width and depth of the equipment and extending from the floor to a height of 1.8 m (6 ft) above the equipment or to the structural ceiling, whichever is lower, shall be dedicated to the electrical installation. No piping, ducts, leak protection apparatus, or other equipment foreign to the electrical installation shall be located in this zone.

Exception: Suspended ceilings with removable panels shall be permitted within the 1.8 m (6 ft) zone.

(b) *Foreign Systems.* The area above the dedicated space required by 110.26(E)(1)(a) shall be permitted to contain foreign systems, provided protection is installed to avoid damage to the electrical equipment from condensation, leaks, or breaks in such foreign systems.

(c) *Sprinkler Protection.* Sprinkler protection shall be permitted for the dedicated space where the piping complies with this section.

(d) *Suspended Ceilings.* A dropped, suspended, or similar ceiling that does not add strength to the building structure shall not be considered a structural ceiling.

(2) Outdoor.

Outdoor installations shall comply with 110.26(E)(2)(a) through (E)(2)(c).

(a) *Installation Requirements.* Outdoor electrical equipment shall be the following:

(1) Installed in identified enclosures

(2) Protected from accidental contact by unauthorized personnel or by vehicular traffic

(3) Protected from accidental spillage or leakage from piping systems

(b) *Work Space.* The working clearance space shall include the zone described in 110.26(A). No architectural appurtenance or other equipment shall be located in this zone.

(c) *Dedicated Equipment Space.* The space equal to the width and depth of the equipment, and extending from grade to a height of 1.8 m (6 ft) above the equipment, shall be dedicated to the electrical installation. No piping or other equipment foreign to the electrical installation shall be located in this zone.

Exception: Structural overhangs or roof extensions shall be permitted in this zone.

(F) Locked Electrical Equipment Rooms or Enclosures.

Electrical equipment rooms or enclosures housing electrical apparatus that are controlled by a lock(s) shall be considered accessible to qualified persons.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 12:07:58 EST 2022

Committee Statement

Committee Statement: The Informational Note at 110.26(C)(3) needs to be revised to combine the two lines into one Informational Note.

Second Correlating Revision No. 29-NFPA 70-2022 [Section No. 210.12(B)]

Detail CC-8204

Detail CC-8019

(B) Dwelling Units.

All 120-volt, single-phase, 10-, 15-, and 20-ampere branch circuits supplying outlets or devices installed in the following locations shall be protected by any of the means described in 210.12(A)(1) through (A)(6):

(1) Kitchens

(2) Family rooms

(3) Dining rooms

(4) Living rooms

(5) Parlors

(6) Libraries

(7) Dens

(8) Bedrooms

(9) Sunrooms

(10) Recreation rooms

(11) Closets

(12) Hallways

(13) Laundry areas

(14) Similar areas

Exception No. 1: AFCI protection shall not be required for an individual branch circuit supplying a fire alarm system installed in accordance with 760.41(B) or 760.121(B). The branch circuit shall be installed in a metal raceway, metal auxiliary gutter, steel-armored cable, or Type MC or Type AC cable meeting the applicable requirements of 250.118, with metal boxes, conduit bodies, and enclosures.

Exception No. 2: AFCI protection shall not be required for the individual branch circuit supplying ~~a receptacle~~ an outlet for arc welding equipment in a dwelling unit ~~effective~~ until January 1, 2025.

~~Informational Note No. 1: See UL 1699-2011, *Standard for Arc-Fault Circuit-Interrupters*, for information on combination-type and branch/feeder-type AFCI devices. See UL Subject 1699A, *Outline of Investigation for Outlet Branch Circuit Arc-Fault Circuit-Interrupters*, for information on outlet branch-circuit type AFCI devices. See UL Subject 1699C, *Outline of Investigation for System Combination Arc-Fault Circuit Interrupters*, for information on system combination AFCIs.~~

Informational Note No. 1: See ~~29.9.4(5) of~~ *NFPA 72*-~~2019~~2022, *National Fire Alarm and Signaling Code*, 29.9.4(5), for information on secondary power source requirements for smoke alarms installed in dwelling units.

Informational Note No. 2: See 760.41(B) and 760.121(B) for power source requirements for fire alarm systems.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 13:54:41 EST 2022

Committee Statement

Committee Statement: The Correlating Committee directs that Informational Note No. 1 be written as follows "Informational Note No. 1: See NFPA 72-2022, National Fire Alarm and Signaling Code, 29.9.4(5), for information on secondary power source requirements for smoke alarms installed in dwelling units." to comply with 3.1.3.1 of the NEC Style Manual.

Committee Comment No. 8203-NFPA 70-2021 [Section No. 210.12]

Second Correlating Revision No. 30-NFPA 70-2022 [Section No. 210.13]

210.13 Ground-Fault Protection of Equipment.

Each branch-circuit ~~disconnect~~ disconnecting means rated 1000 amperes or more and installed on solidly grounded wye electrical systems of more than 150 volts to ground, but not exceeding 1000 volts phase-to-phase, shall be provided with ground-fault protection of equipment in accordance with 230.95.

Informational Note: See 517.17 for requirements on buildings that contain health care occupancies.

Exception No. 1: This section shall not apply to a disconnecting means for a continuous industrial process where a nonorderly shutdown will introduce additional or increased hazards.

Exception No. 2: This section shall not apply if ground-fault protection of equipment is provided on the supply side of the branch circuit and on the load side of any transformer supplying the branch circuit.

~~*Exception No. 3: For fused disconnects, where the available fault current is 10,000 amperes or greater, the ground-fault protection provisions of this section shall not apply if the fused disconnect complies with 240.67(B) (1) or (B)(3) and is set to operate at the lower of the calculated minimum arcing current or 38 percent of the available fault current.*~~

~~*Exception No. 4: For circuit breakers, where the available fault current is 10,000 amperes or greater, the ground-fault protection provisions of this section shall not apply if the circuit breaker complies with 240.87(B) (2) or (4) and is set to operate at the lower of the calculated minimum arcing current or 38 percent of the available fault current.*~~

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 14:13:26 EST 2022

Committee Statement

Committee Statement: The Correlating Committee action resolves a correlation problem between the responsibilities of CMP 2 and CMP 10 relative to providing alternative approaches to ground-fault protection. In addition the Correlating Committee directs that the word “disconnect” be changed to “disconnecting means” in this section for correlation with the defined term.

Second Revision No. 8035-NFPA 70-2021 [Section No. 210.13]

Second Correlating Revision No. 43-NFPA 70-2022 [Section No. 210.24]

210.24 Branch-Circuit Requirements — Summary.

The requirements for circuits that have two or more outlets or receptacles, other than the receptacle circuits of 210.11(C)(1), (C)(2), and (C)(3), are summarized in Table 210.24(1) for copper conductors and ~~Table 210.24(b)~~ Table 210.24(2) for aluminum and copper-clad aluminum conductors. Table 210.24(1) and ~~Table 210.24(b)~~ Table 210.24(2) provide only a summary of minimum requirements. See 210.19, 210.20, and 210.21 for the specific requirements applying to branch circuits.

Table 210.24(1) Summary of Branch-Circuit Requirements — Copper Conductors

Circuit Rating	**10 A**	**15 A**	**20 A**	**30 A**	**40 A**	**50 A**
Conductors (min. size):				~~cc~~		
Circuit wires~~1~~	14	14	12	10	8	6
Taps	14	14	14	14	12	12
Fixture wires and cords			See 240.5.			
Overcurrent Protection	**10 A**	**15 A**	**20 A**	**30 A**	**40 A**	**50 A**
Outlet devices:						
Lampholders permitted	Any type	Any type	Any type	Heavy duty	Heavy duty	Heavy duty
Receptacle rating~~2~~ 1	~~See note 2.~~ Not applicable 2	15 max. A	15 A or 20 A	30 A	40 A or 50 A	50 A
Maximum Load	**10 A**	**15 A**	**20 A**	**30 A**	**40 A**	**50 A**
Permissible load	See 210.23(A).	See 210.23(B).	See 210.23(B).	See 210.23(C).	See 210.23(D).	See 210.23(D).

1For receptacle rating of cord-connected electric-discharge luminaires, see 410.62(C).

2Branch circuits rated 10-amperes shall not ~~be permitted to~~ supply ~~receptacles~~ receptacle outlets .

Table 210.24(2) Summary of Branch-Circuit Requirements — Aluminum and Copper-Clad Aluminum Conductors

Circuit Rating	**10 A~~1~~**	**15 A**	**20 A**	**30 A**	**40 A**	**50 A**
Conductors (min. size):						
Circuit wires	~~14~~ ~~1~~ 12	12	10	8	6	4
Taps	~~14~~ ~~1~~ 12	12	12	12	10	10
Fixture wires and cords				See 240.5.		
Overcurrent Protection	**10 A~~1~~**	**15 A**	**20 A**	**30 A**	**40 A**	**50 A**
Outlet devices:						
Lampholders permitted	Any type	Any type	Any type	Heavy duty	Heavy duty	Heavy duty
Receptacle rating~~2~~ 1	~~See note 3.~~ Not applicable 2	15 max. A	15 A or 20 A	30 A	40 A or 50 A	50 A
Maximum Load	**10 A~~1~~**	**15 A**	**20 A**	**30 A**	**40 A**	**50 A**

Circuit Rating	10 A[1]	15 A	20 A	30 A	40 A	50 A
Permissible load	See 210.23(A).	See 210.23(B).	See 210.23(B).	See 210.23(C).	See 210.23(D).	See 210.23(D).

~~1~~ ~~Copper-clad aluminum conductors only.~~

~~2~~ 1 For receptacle rating of cord-connected electric-discharge luminaires, see 410.62(C).

~~3~~ 2 Branch circuits rated 10-amperes shall not ~~be permitted to~~ supply ~~receptacles~~ receptacle outlets .

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 15:48:11 EST 2022

Committee Statement

Committee Statement: The allowance for a 14 AWG copper-clad aluminum is changed to a #12 AWG from the table for a 10 ampere circuit to correlate with the requirements of 310.3 which permits 12 AWG copper-clad aluminum as the minimum size. Table 210.24(1) is revised to 14 AWG copper as the minimum size branch circuit conductor permitted by 310.3.

SR-8049-NFPA 70-2021

Second Correlating Revision No. 27-NFPA 70-2022 [Section No. 210.52(C)]

Detail SR-8210

(C) Countertops and Work Surfaces.

In kitchens, pantries, breakfast rooms, dining rooms, and similar areas of dwelling units, receptacle outlets for countertop and work surfaces that are 300 mm (12 in.) or wider shall be installed in accordance with 210.52(C)(1) through (C)~~(4)~~ (3) and shall not be considered as the receptacle outlets required by 210.52(A).

For the purposes of this section, where using multioutlet assemblies, each 300 mm (12 in.) of multioutlet assembly containing two or more receptacles installed in individual or continuous lengths shall be considered to be one receptacle outlet.

~~**(1)**~~

~~For the purposes of this section, receptacles installed in accordance with either of the following shall be considered as one receptacle outlet:~~

(0) ~~Each 300 mm (12 in.) of multioutlet assembly containing two or more receptacles installed in individual or continuous lengths~~

(0) ~~Each two receptacles installed in the same device box~~

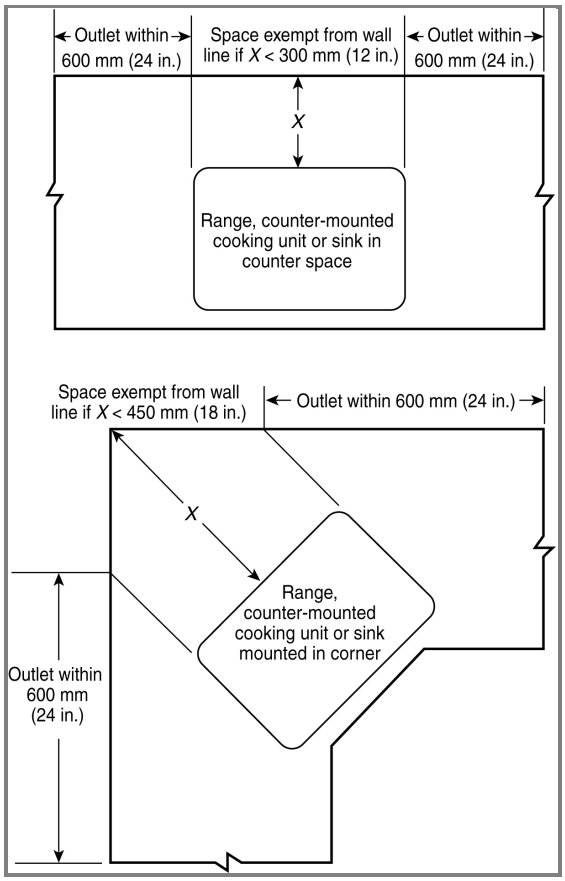
(1) Wall Spaces.

Receptacle outlets shall be installed so that no point along the wall line is more than 600 mm (24 in.) measured horizontally from a receptacle outlet in that space. The location of the receptacles shall be in accordance with 210.52(C)(3).

Exception No. 1: Receptacle outlets shall not be required directly behind a range, counter-mounted cooking unit, or sink in the installation described in Figure 210.52(C)(1).

Exception No. 2: Where a required receptacle outlet cannot be installed in the wall areas shown in Figure 210.52(C)(1), the receptacle outlet shall be permitted to be installed as close as practicable to the countertop area to be served. The total number of receptacle outlets serving the countertop shall not be less than the number needed to satisfy 210.52(C)(1). These outlets shall be located in accordance with 210.52(C)(3).

Figure 210.52(C)(1) Determination of Area Behind a Range, Counter-Mounted Cooking Unit, or Sink.



Detail SR-8209

(2) Island and Peninsular Countertops and Work Surfaces.

Receptacle outlets, if installed to serve an island or peninsular countertop or work surface, shall be installed in accordance with ~~210.52(C)(3)(a) and (C)(3)(b)~~210.52(C)(3). If a receptacle outlet is not provided to serve an island or peninsular countertop or work surface, provisions shall be provided at the island or peninsula for future addition of a receptacle outlet to serve the island or peninsular countertop or work surface.

(0) ~~*Locations with Countertop or Work Surface Wall Spaces.* At least one receptacle outlet shall be installed where the location is also provided with countertops or work surfaces totaling more than 1.2 linear m (4 linear ft).~~

(0) ~~*Locations without Countertop or Work Surface Wall Spaces*. Receptacle outlets shall be installed in accordance with one of the following. Receptacle outlets shall be permitted to be located as determined by the installer, designer, or building owner.~~

~~Where a peninsular countertop is connected to a wall countertop, the peninsular countertop shall be measured from the connected wall countertop. Where a peninsular countertop is connected to a wall, the peninsular countertop shall be measured from the wall.~~

Detail CC-8208

(3) Receptacle Outlet Location.

Receptacle outlets shall be located in one or more of the following:

(1) ~~On or above countertop or work surfaces:~~ On or above, but not more than 500 mm (20 in.) above, ~~countertops~~a countertop or work ~~surfaces.~~surface

(2) In a countertop ~~or work surfaces: Receptacle outlet assemblies listed for use in countertops or work surfaces shall be permitted to be installed in countertops or work surfaces.~~using receptacle outlet assemblies listed for use in countertops

(3) ~~Below countertop or works surfaces: Not more than 300 mm (12 in.) below countertops or work surfaces. Receptacles installed below a countertop or work surface shall not be located where the countertop or work surface extends more than 150 mm (6 in.) beyond the face of such receptacles.~~ In a work surface using receptacle outlet assemblies listed for use in work surfaces or listed for use in countertops

Receptacle outlets rendered not readily accessible by appliances fastened in place, appliance garages, sinks, or rangetops as covered in 210.52(C)(1), Exception No. 1, or appliances occupying assigned spaces shall not be considered as these required outlets.

Informational Note No. 1: See 406.5(E)~~and 406.5(G)~~ for installation of receptacles in countertops and 406.5(F)~~ and 406.5(G)~~ for installation of receptacles in work surfaces. See 380.10 for installation of multioutlet assemblies.

Informational Note No. 2: See Informative Annex J and ANSI/ICC A117.1-2009, *Standard on Accessible and Usable Buildings and Facilities*, for additional information.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 13:43:54 EST 2022

Committee Statement

Committee Statement: The Correlating Committee directs that Informational Notes 1 and 2 be revised as follows to comply with 3.1.3.1 of the NEC Style Manual:

Committee Comment No. 8090-NFPA 70-2021 [Section No. 210.52(C)]

Second Revision No. 8208-NFPA 70-2021 [Detail]

Second Correlating Revision No. 125-NFPA 70-2022 [Section No. 215.1]

Global CC-8472

215.1 Scope.

This article covers the installation requirements, overcurrent protection requirements, minimum size, and ampacity of conductors for feeders not over 1000 volts ac or 1500 volts dc, nominal.

Informational Note: See Part III of Article 235 for feeders over 1000 volts ac or 1500 volts dc.

~~*Exception: This article does not apply to feeders for electrolytic cells as covered in 668.3(C)(1) and (C)(4).*~~

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Fri Feb 11 15:02:03 EST 2022

Committee Statement

Committee Statement: The Scope statement is revised to use standard terms as specified in 3.2.4 of the NEC Style Manual.

SR-8215-NFPA 70-2021

Second Correlating Revision No. 31-NFPA 70-2022 [Section No. 220.1]

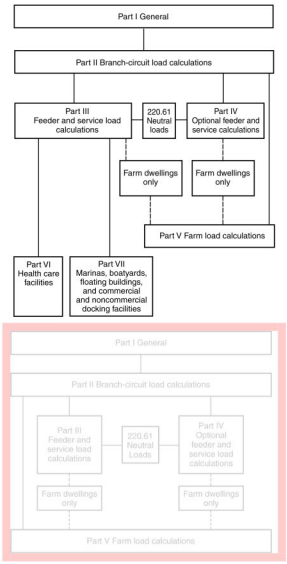
220.1 Scope.

This article provides requirements for calculating branch-circuit, feeder, and service loads. Part I provides general requirements for calculation methods. Part II provides calculation methods for branch-circuit loads. Parts ~~s~~ III and Part IV provide calculation methods for feeder and service loads. Part V provides calculation methods for farm loads. Part VI provides calculation methods for health care facilities. Part VII provides calculation methods for marinas, boatyards, floating buildings, and commercial and noncommercial docking facilities.

Informational Note No. 1: See ~~examples in~~ Informative Annex D for examples .

Informational Note No. 2: See Figure Informational Note 220.1 for information on the organization of ~~Article~~ ~~220~~ this article .

Figure Informational Note 220.1 Branch-Circuit, Feeder, and Service Load Calculation Methods.



Supplemental Information

File Name	Description	Approved
NEC_Figure220.1_SCR31.docx	For staff use	

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 14:31:58 EST 2022

Committee Statement

Committee Statement: The Correlating Committee directs this section be revised to include the new parts of article 220. The figure will also need to be revised.

Committee Comment No. 8093-NFPA 70-2021 [Section No. 220.1]

Second Correlating Revision No. 28-NFPA 70-2022 [Section No. 220.40]

Detail SCR-42

220.40 General.

The calculated load of a feeder or service shall not be less than the sum of the loads on the branch circuits supplied, as determined by Part II of this article, after any applicable demand factors permitted or required by Part III, ~~or~~ IV, V, VI, or ~~required by Part V~~ VII have been applied.

Informational Note No. 1: See Informative Annex D, Examples D1(a) through D10 ~~in Informative Annex D~~, for examples of feeder and service load calculations.

Informational Note No. 2: See ~~220.18(B)~~220.11(B) for the maximum load in amperes permitted for lighting units operating at less than 100 percent power factor.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 13:48:08 EST 2022

Committee Statement

Committee Statement: The Correlating Committee directs that the Informational Notes be split into two notes as follows. The two sentences are unrelated and splitting into two informational notes improves usability of the code.

Second Revision No. 8096-NFPA 70-2021 [Section No. 220.40]

Second Correlating Revision No. 36-NFPA 70-2022 [Section No. 220.48]

Part VI. Health Care Facilities

220.110 Receptacle Loads ~~— Health Care Facilities~~ .

Receptacle loads calculated in accordance with 220.14(H) and (I) and supplied by branch circuits not exceeding 150 volts to ground shall be permitted to be subjected to the demand factors provided in Table 220.110(1) and Table 220.110(2) for health care facilities.

Informational Note No. 1: See Article 100 for the definitions of patient care space categories.

Informational Note No. 2: See 220.14(I) for the calculation of receptacle outlet loads.

Table 220.110(1) Demand Factors for ~~Health Care Receptacle Loads~~ Receptacles Supplied by General-Purpose Branch Circuits in Category 1 and Category 2 Patient Care Spaces

Portion of Receptacle Load to Which Demand Factor Applies (Volt-Amperes)	Demand Factor (%)
First ~~7500~~ 5000 or less	~~125~~ 100
From ~~7501~~ 5001 to 10,000	~~100~~ 50
~~From 10,001 to 15,000~~	~~50~~
Remainder over ~~15,000~~ 10,000	~~45~~ 25

Table 220.110(2) Demand Factors for Receptacles Supplied by General-Purpose Branch Circuits in Category 3 and Category 4 Patient Care Spaces

Portion of Receptacle Load to Which Demand Factor Applies (Volt-Amperes)	Demand Factor (%)
First 10,000 or less	100
Remainder over 10,000	50

Supplemental Information

File Name	Description	Approved
NEC_SCR-36_220.48.docx	For staff use	

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 15:02:16 EST 2022

Committee Statement

Committee Statement: The Correlating Committee (SCR-39 in the 2020 Code cycle) and the Standards Council (Decision D#19-25) have established that CMP-2 has responsibility for occupancy-based load calculations and demand factors. Section 220.48 is relocated to a New Part VI, Section 220.110. The Correlating Committee assigns responsibility for Part VI to CMP-15.

A revision to 517.22 would need to be made to reflect the relocation.

Second Correlating Revision No. 32-NFPA 70-2022 [New Section after 220.57]

Part VII. Marinas, Boatyards, Floating Buildings, and Commercial and Noncommercial Docking Facilities

220.120 Receptacle Loads.

General lighting and other loads in marinas, boatyards, floating buildings, and commercial and noncommercial docking facilities shall be calculated in accordance with Part III of this article and, in addition, the demand factors set forth in Table 220.120 shall be permitted for each service or feeder circuit supplying receptacles that provide shore power for boats. These calculations shall be permitted to be modified as indicated in Notes (1) and (2) of Table 220.120 . Where demand factors of Table 220.120 are applied, the demand factor specified in 220.61(B) shall not be permitted.

Informational Note: These demand factors could be inadequate in areas of extreme hot or cold temperatures with loaded circuits for heating, air-conditioning, or refrigerating equipment.

Table 220.120 Demand Factors for Shore Power Receptacle Loads

Number of Shore Power Receptacles	Sum of the Rating of the Receptacles (%)
1–4	100
5–8	90
9–14	80
15–30	70
31–40	60
41–50	50
51–70	40
≥71	30

Notes:

1. Where shore power accommodations provide two receptacles specifically for an individual boat slip and these receptacles have different voltages (e.g., one 30-ampere, 125-volt and one 50-ampere, 125/250-volt), only the receptacle with the larger kilowatt demand shall be required to be calculated.

2. For each shore powered pedestal being installed that includes an individual kilowatt-hour submeters for each slip and is being calculated using the criteria listed in Table 220.120, the total demand amperes shall be permitted to be multiplied by 0.9 to achieve the final demand amperes of the facility.

3. If a circuit feeding a boat hoist and shore power for the same boat slip is shared, only the load with the larger kilowatt demand shall be required to be counted in the load calculation.

Supplemental Information

File Name	Description	Approved
NEC_SCR-32_220.58.docx	For staff use	

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 14:43:44 EST 2022

Committee Statement

Committee Statement: The Correlating Committee revises this requirement based on changes made by CMP-7 in SR8685 and the requirement is relocated to a new Part VII, as Section 220.120. The Correlating Committee assigns responsibility for Part VII to CMP-7.

Second Correlating Revision No. 34-NFPA 70-2022 [Section No. 220.60]

220.60 Noncoincident Loads.

~~Where~~ If it is unlikely that two or more noncoincident loads will be in use simultaneously, using only the largest load(s) that will be used at one time for calculating the total load of a feeder or service shall be permitted. ~~Where~~ If a motor or air-conditioning load is part of the noncoincident load and is not the largest of the noncoincident loads, 125 percent of either the motor load or air-conditioning load, whichever is larger, shall be used in the calculation.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 14:54:55 EST 2022

Committee Statement

Committee Statement: The Correlating Committee directs that the section be rewritten as follows, changing the second instance of the use “where” to “if” to comply with the NEC Style Manual 3.3.4 on word clarity and correlate with panel actions in SR 8102

Second Revision No. 8102-NFPA 70-2021 [Section No. 220.60]

Second Correlating Revision No. 41-NFPA 70-2022 [Section No. 225.41(B)]

(B) Identification of Other ~~Emergency~~ Isolation Disconnects.

Where ~~emergency disconnects are installed for other systems that are~~ equipment for isolation of other energy source systems is not located adjacent to the emergency disconnect required by this section, a plaque or directory identifying the location of all ~~emergency disconnects~~ equipment for isolation of other energy sources shall be located adjacent to the disconnecting means required by this section.

Informational Note: See 445.18 , 480.7 , 705.20 , and 706.15 for examples of other energy source system isolation means.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 15:37:13 EST 2022

Committee Statement

Committee Statement: The Correlating Committee corrected the reference for generator disconnects to 445.18.

Second Revision No. 8275-NFPA 70-2021 [Section No. 225.41(B)]

Second Correlating Revision No. 66-NFPA 70-2022 [Section No. 230.85(B)]

(B) Disconnects.

Each disconnect shall be one of the following:

(1) Service disconnect

(2) A meter disconnect integral to the meter mounting equipment not marked as suitable only for use as service equipment installed in accordance with 230.82

(3) Other listed disconnect switch or circuit breaker that is marked suitable for use as service equipment, but not marked as suitable only for use as service equipment, installed on the supply side of each service disconnect

Informational Note 1: Conductors between the emergency disconnect and the service disconnect in 230.85(2) and 230.85(3) are service conductors.

Informational Note 2: Equipment marked “Suitable only for use as service equipment” ~~is not appropriate for use as the emergency disconnect in 230.85(B)(3), because it would require the equipment to be modified after leaving the factory, by removing the factory~~ includes the factory marking “Service Disconnect”. ~~and perhaps removing the factory installed bonding jumper, which may be nonremovable.~~

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Wed Feb 09 09:16:11 EST 2022

Committee Statement

Committee Statement: The Correlating Committee revised Informational Note 2 for clarity.

Second Revision No. 8262-NFPA 70-2021 [Section No. 230.85(B)]

Second Correlating Revision No. 67-NFPA 70-2022 [Section No. 230.85(D)]

(D) Identification of Other ~~Emergency~~ Isolation Disconnects.

Where ~~emergency disconnects are installed for other systems that are~~ equipment for isolation of other energy source systems is not located adjacent to the emergency disconnect required by this section, a plaque or directory identifying the location of all ~~emergency disconnects~~ equipment for isolation of other energy sources shall be located adjacent to the disconnecting means required by this section.

Informational Note: See 445.18 , 480.7 , 705.20 , and 706.15 for examples of other energy source system isolation means.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Wed Feb 09 09:18:29 EST 2022

Committee Statement

Committee Statement: The Correlating Committee corrected the reference for generator disconnects to 445.18.

Second Revision No. 8268-NFPA 70-2021 [Section No. 230.85(D)]

Second Correlating Revision No. 88-NFPA 70-2022 [Section No. 245.1]

245.1 Scope.

This article covers ~~requirements for the installation of overcurrent protection of circuits and related electrical equipment permanently installed on premises wiring~~ overcurrent protection requirements for systems over 1000 volts ac, 1500 volts dc, nominal.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Wed Feb 09 11:23:55 EST 2022

Committee Statement

Committee Statement: The Correlating Committee has purview over article scope statements and has revised the scope of Article 245 for alignment with the article title.

Second Correlating Revision No. 87-NFPA 70-2022 [Section No. 245.2]

245.2 Reconditioned Equipment.

~~Reconditioned equipment shall be permitted as follows:~~

(0) ~~Medium- and high-voltage circuit breakers shall be permitted to be reconditioned.~~

(0) ~~Electromechanical protective relays and current transformers shall be permitted to be reconditioned.~~

(0) ~~Medium-voltage fuseholders and medium-voltage nonrenewable fuses shall not be reconditioned.~~

(A) Reconditioned Equipment Permitted.

~~Reconditioned~~ The following reconditioned equipment shall be permitted ~~as follows~~ :

(1) Medium- and high-voltage circuit breakers ~~shall be permitted to be reconditioned.~~

(2) Electromechanical protective relays and current transformers ~~shall be permitted to be reconditioned.~~

(B) Reconditioned Equipment Not Permitted.

Medium-voltage fuseholders and medium-voltage nonrenewable fuses shall not be ~~reconditioned~~ permitted .

Supplemental Information

File Name	Description	Approved
NEC_SCR-87_245.2.docx	For staff use	

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Wed Feb 09 11:05:44 EST 2022

Committee Statement

Committee Statement: The Correlating Committee has revised this section to align with 90.2(A) and the structure of 240.2.

Second Correlating Revision No. 37-NFPA 70-2022 [Section No. 250.20]

250.20 Alternating-Current Systems to Be Grounded.

Alternating-current systems shall be grounded in accordance with 250.20(A), (B), (C), or (D), unless prohibited elsewhere in this *Code*. Other systems shall be permitted to be grounded. If such systems are grounded, they shall comply with the applicable provisions of this article.

Informational Note No. 1: An example of a system permitted to be grounded is a corner-grounded delta transformer connection. ~~See 250.26(4) for conductor to be grounded.~~

Informational Note No. 2: See 503.155, 517.61, 517.160, 668.10, and 680.23(A)(2) for examples of circuits prohibited to be grounded.

(A) Alternating-Current Systems of Less Than 50 Volts.

Alternating-current systems of less than 50 volts shall be grounded under any of the following conditions:

(1) If supplied by transformers, if the transformer supply system exceeds 150 volts to ground

(2) If supplied by transformers, if the transformer supply system is ungrounded

(3) If installed outside as overhead conductors

(B) Alternating-Current Systems of 50 Volts to 1000 Volts.

Alternating-current systems of 50 volts to 1000 volts that supply premises wiring and premises wiring systems shall be grounded under any of the following conditions:

(1) If the system can be grounded so that the maximum voltage to ground on the ungrounded conductors does not exceed 150 volts

(2) If the system is 3-phase, 4-wire, wye connected in which the neutral conductor is used as a circuit conductor

(3) If the system is 3-phase, 4-wire, delta connected in which the midpoint of one phase winding is used as a circuit conductor

Informational Note: ~~According to Annex O of~~ See NFPA *70E*-2021, *Standard for Electrical Safety in the Workplace*, ~~high-~~ Annex O, impedance grounding ~~is an effective tool~~ to reduce arc-flash hazards.

(C) Alternating-Current Systems of over 1000 Volts.

Alternating-current systems supplying mobile or portable equipment shall be grounded in accordance with 250.188. If supplying other than mobile or portable equipment, such systems shall be permitted to be grounded.

(D) Impedance Grounded Systems.

Impedance grounded systems shall be grounded in accordance with 250.36 or 250.187, as applicable.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 15:21:07 EST 2022

Committee Statement

Committee Statement: Changes were made to comply with the NEC Style Manual 3.1.3 Informational Notes shall not include interpretations and 3.1.3.1 for the structure.

Changes were made to delete the term “high” regarding impedance to correlate with other changes by CMP-5. (FR-8235)

Second Revision No. 7951-NFPA 70-2021 [Section No. 250.20]

Second Correlating Revision No. 38-NFPA 70-2022 [Section No. 250.36]

250.36 Impedance Grounded Systems — 480 Volts to 1000 Volts.

Impedance grounded systems in which a grounding impedance device, typically a resistor, limits the ground-fault current ~~to a low value~~ shall be permitted for 3-phase ac systems of 480 volts to 1000 volts if all the following conditions are met:

(1) The conditions of maintenance and supervision ensure that only qualified persons service the installation.

(2) Ground detectors are installed on the system.

(3) Line-to-neutral loads are not served.

Impedance grounded systems shall comply with 250.36(A) through (G).

Informational Note: ~~According to Annex O of~~ See NFPA *70E*-2021, *Standard for Electrical Safety in the Workplace*, Annex O, for information on impedance grounding ~~is an effective tool~~ to reduce arc-flash hazards.

(A) Location.

The grounding impedance device shall be installed between the grounding electrode conductor and the impedance grounding conductor connected to the system neutral point. If a neutral point is not available, the grounding impedance shall be installed between the grounding electrode conductor and the impedance grounding conductor connected to the neutral point derived from a grounding transformer.

(B) Impedance Grounding Conductor Insulation and Ampacity.

The impedance grounding conductor from the neutral point of the transformer or generator to its connection point to the grounding impedance shall be fully insulated.

The impedance grounding conductor shall have an ampacity of not less than the maximum current rating of the grounding impedance but in no case shall the impedance grounding conductor be smaller than 8 AWG copper or 6 AWG aluminum or copper-clad aluminum.

(C) System Grounding Connection.

The system shall not be connected to ground except through the grounding impedance device.

Informational Note: The impedance is normally selected to limit the ground-fault current to a value slightly greater than or equal to the capacitive charging current of the system. This value of impedance will also limit transient overvoltages to safe values. For guidance, refer to criteria for limiting transient overvoltages in IEEE 3003.1-2019, *Recommended Practice for System Grounding of Industrial and Commercial Power Systems*.

(D) Impedance Grounding Conductor Routing.

The impedance grounding conductor shall be permitted to be installed in a separate raceway from the ungrounded conductors. It shall not be required to run this conductor with the phase conductors to the first system disconnecting means or overcurrent device.

(E) ~~Equipment~~ Impedance Bonding Jumper.

The ~~equipment~~ impedance bonding jumper (the connection between the equipment grounding conductors and the grounding impedance device) shall be an unspliced conductor run from the first system disconnecting means or overcurrent device to the grounded side of the grounding impedance device.

(F) Grounding Electrode Conductor Connection Location.

For services or separately derived systems, the grounding electrode conductor shall be connected at any point from the grounded side of the grounding impedance device to the equipment grounding connection at the service equipment or the first system disconnecting means of a separately derived system.

(G) ~~Equipment~~ Impedance Bonding Jumper Size.

The ~~equipment~~ impedance bonding jumper shall be sized in accordance with either of the following:

(1) If the grounding electrode conductor connection is made at the grounding impedance device, the equipment bonding jumper shall be sized in accordance with 250.66, based on the size of the service entrance conductors for a service or the derived phase conductors for a separately derived system.

(2) If the grounding electrode conductor is connected at the first system disconnecting means or overcurrent device, the ~~equipment~~ impedance bonding jumper shall be sized the same as the impedance grounding conductor in 250.36(B).

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 15:25:30 EST 2022

Committee Statement

Committee Statement: Changes were made to comply with the NEC Style Manual 3.1.3 Informational Notes shall not include interpretations and 3.1.3.1 for the structure.

Second Revision No. 8047-NFPA 70-2021 [Section No. 250.36]

Second Correlating Revision No. 39-NFPA 70-2022 [Section No. 250.104(B)]

(B) Other Metal Piping.

If installed in or attached to a building or structure, a metal piping system(s), including gas piping, that is likely to become energized shall be bonded to any of the following:

(1) Equipment grounding conductor for the circuit that is likely to energize the piping system

(2) Service equipment enclosure

(3) Grounded conductor at the service

(4) Grounding electrode conductor, if of sufficient size

(5) One or more grounding electrodes used, if the grounding electrode conductor or bonding jumper to the grounding electrode is of sufficient size

The bonding conductor(s) or jumper(s) shall be sized in accordance with Table 250.122, and equipment grounding conductors shall be sized in accordance with Table 250.122 using the rating of the circuit that is likely to energize the piping system(s). The points of attachment of the bonding jumper(s) shall be accessible.

Informational Note No. 1: Bonding all piping and metal air ducts within the premises will provide additional safety.

Informational Note No. 2: ~~Additional information for gas piping systems can be found in~~ See NFPA 54-~~2018~~ , *National Fuel Gas Code*, and NFPA 780-~~2017~~ , *Standard for the Installation of Lightning Protection Systems*, for information on gas piping systems .

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 15:28:52 EST 2022

Committee Statement

Committee Statement: Changes were made to comply with the NEC Style Manual 3.1.3.1 Informational note structure. The Standard edition dates were removed to correlate with other CMP-5 actions. (SR 7989)

Second Correlating Revision No. 40-NFPA 70-2022 [Section No. 250.167(C)]

(C) Marking.

Direct-current systems shall be legibly marked to indicate the grounding type at the dc source or the first disconnecting means of the system. The marking shall be of sufficient durability to withstand the environment involved.

Informational Note: See NFPA *70E*-~~2021~~ 2018 , *Standard for Electrical Safety in the Workplace*, which identifies four dc grounding types in detail.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 15:34:00 EST 2022

Committee Statement

Committee Statement: The word “See” was added at the beginning of the Informational Note to comply with the NEC Style Manual 3.1.3.1. The referenced standard edition date was left as 2018 because the referenced material does not exist in the most current edition.

Second Correlating Revision No. 22-NFPA 70-2022 [Section No. 305.1]

305.1 Scope.

This article covers wiring methods and materials for ~~wiring installations for~~ systems rated over 1000 volts ac, 1500 volts dc, nominal.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 11:59:13 EST 2022

Committee Statement

Committee Statement: The scope is revised for clarity. The NEC is an installation Code, and it is unnecessary to restate this in each Article scope.

Second Revision No. 8485-NFPA 70-2021 [Detail]

Second Correlating Revision No. 23-NFPA 70-2022 [Section No. 305.3]

Global SCR-134

Global SCR-46

305.3 ~~Wiring Methods~~Other Articles.

Conductors shall be permitted to be installed in accordance with any of the wiring methods identified in Table 305.3.

Table 305.3 Wiring Methods Permitted for Use in Systems Rated Over 1000 Volts ac, 1500 Volts dc, Nominal

Wiring Methods Permitted for Use Above 1000 Volts ac, 1500 Volts dc	Voltage Levels	Reference
Pull and junction boxes, conduit bodies, and handhole enclosures	Over 1000	Article ~~305~~314, Part ~~II~~IV
Metal-clad cable (Type MC)	~~0–35~~1000–35,000	Article 330
Type ~~P~~IM cable	~~0–2000~~1000–2000	Article 337
Intermediate metal conduit (~~Type~~ IMC)	~~Not specified~~Over 1000	Article 342
Rigid metal conduit (~~Type~~ RMC)	~~Not specified~~Over 1000	Article 344
Rigid polyvinyl chloride conduit (~~Type~~ PVC)	~~Not specified~~Over 1000	Article 352
Reinforced thermosetting resin conduit (~~Type~~ RTRC)	~~Not specified~~Over 1000	Article 355
Electrical metallic tubing (~~Type~~ EMT)	~~Not specified~~Over 1000	Article 358
Auxiliary gutters	~~Not specified~~Over 1000	Article 366
Busway	Over 1000	Article ~~305~~368, Part ~~III~~IV
Cablebus	~~0–35~~1000–35,000	Article 370
Cable trays	~~0–35~~1000–35,000	Article 392
Messenger-supported wiring	~~0–35~~1000–35,000	Article 396
Outdoor overhead conductors	Over 1000	Article ~~305, Part IV~~395
Insulated bus pipe (~~Type~~ IBP)	~~0–35~~1000–35,000 ac	Article 369

Exposed runs of Type MV cables, bare conductors, and bare busbars shall be permitted in locations accessible only to qualified persons. Busbars shall be permitted to be either copper or aluminum.

Exception: Airfield lighting cable used in series circuits that are powered by regulators and installed in restricted airport lighting vaults shall be permitted as exposed cable installations.

Informational Note: An example of a common application is FAA L-824 cables installed as exposed runs within a restricted vault area.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 12:01:53 EST 2022

Committee Statement

Committee Statement: Committee Statement indicates the intended action was for the relocated Section 305.3 to be titled “Other Articles”. This SCR makes this correction.

SR-8493-NFPA 70-2021

Second Correlating Revision No. 44-NFPA 70-2022 [Section No. 310.1]

310.1 Scope.

This article covers general requirements for conductors rated up to and including 2000 volts and their type designations, insulations, markings, mechanical strengths, ampacity ratings, and uses. These requirements do not apply to conductors that form an integral part of equipment, such as motors, motor controllers, and similar equipment, or to conductors specifically provided for elsewhere in this *Code*.

~~Informational Note: See Article 400 for flexible cords and flexible cables. See Article 402 for fixture wires.~~

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 15:59:20 EST 2022

Committee Statement

Committee Statement: The Correlating Committee directs the Informational Note in 310.1 to be deleted as it does not comply with Section 4.1.4 of the NEC Style Manual. The Panel action on SR-8276 continues to reference an entire Article in violation of the NEC Style Manual. The Panel and the Correlating Committee need to comply with the NEC Style Manual.

Second Revision No. 8276-NFPA 70-2021 [Section No. 310.1]

Second Correlating Revision No. 1-NFPA 70-2022 [Section No. 314.16(B)(6)]

(6) Terminal Block Fill.

Where a terminal block is present in a box, a single volume allowance in accordance with Table 314.16(B)(1) shall be made for each terminal block assembly based on the largest conductor(s) terminated ~~within~~ to ~~it~~ the assembly .

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 09:42:21 EST 2022

Committee Statement

Committee Statement: This is an editorial correction to improve grammar and clarity.

Second Revision No. 7529-NFPA 70-2021 [Section No. 314.16(B)(6)]

Second Correlating Revision No. 2-NFPA 70-2022 [Section No. 314.24(C)]

(C) Clearances for Side-Wiring Entrances.

~~The rearward projection of devices or equipment shall not be greater than the depth of a knockout being used for a side-wiring entrance, as measured to its centerline parallel to the rear of the box opposite to the equipment, unless the clearance from the inside wall of the box equals or exceeds 13 mm (½ in.).~~ Where devices or equipment are mounted in boxes having side-wiring entries, the conductors entering from the side shall be protected as covered in (1) or (2), as follows. The term *side* applies to any wall of a box other than the one opposite to the opening.

(1) The rearward projection of the device or equipment shall not extend beyond the centerline of the wiring knockout or other entry.

(2) The clearance from the box wall to the installed device or equipment shall be not less than 13 mm (½ in.).

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 09:47:32 EST 2022

Committee Statement

Committee Statement: This is an editorial correction to improve grammar and clarity.

Second Revision No. 7531-NFPA 70-2021 [Section No. 314.24(C)]

Second Correlating Revision No. 65-NFPA 70-2022 [Section No. 315.1]

315.1 Scope.

This article covers the use, installation, construction specifications, and ampacities for Type MV medium voltage conductors, cable, cable joints, and cable terminations. This article includes voltages from 2001 volts to 35,000 volts ~~does not include voltages above~~ ac, nominal and 2001 volts to 2500 volts ~~for~~ dc, ~~circuits~~ nominal .

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Wed Feb 09 09:11:38 EST 2022

Committee Statement

Committee Statement: The Correlating Committee advises that article scope statements are the responsibility of the Correlating Committee and the Correlating Committee accepts the panel action as revised. The revision is for correlation and consistency with NEC scope structure and to clarify the voltages that are covered.

Second Revision No. 8260-NFPA 70-2021 [Section No. 315.1]

Second Correlating Revision No. 45-NFPA 70-2022 [Section No. 320.23]

320.23 In Accessible Attics.

Type AC cables in accessible attics or roof spaces shall be installed as specified in 320.23(A) and (B).

(A) Cables Run Across the Top of ~~Joists~~ Framing Members .

Where run across the top of ~~joists~~ framing members , or across the face of rafters or studding within 2.1 m (7 ft) of the floor or ~~joists~~ horizontal surface , the cable shall be protected by guard strips that are at least as high as the cable. Where this space is not accessible by permanently installed stairs or ladders, protection shall only be required within 1.8 m (6 ft) of the nearest edge of the scuttle hole or attic entrance.

(B) Cable Installed Parallel to Framing Members.

Where the cable is installed parallel to the sides of rafters, studs, or ceiling or floor joists, neither guard strips nor running boards shall be required, and the installation shall also comply with 300.4(D).

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 16:01:22 EST 2022

Committee Statement

Committee Statement: The Correlating Committee rejects the use of the word “equivalent” as a vague and unenforceable term in compliance with Section 3.2.1 of the NEC Style Manual.

Second Revision No. 8306-NFPA 70-2021 [Section No. 320.23]

Second Correlating Revision No. 77-NFPA 70-2022 [Section No. 404.16]

404.16 Reconditioned Equipment.

(A) Lighting, Dimmer, and Electronic Control Switches.

~~Lighting~~ Reconditioned lighting , dimmer, and electronic control switches shall not be permitted ~~to be reconditioned~~ .

(B) Snap Switches.

~~Snap~~ Reconditioned snap switches of any type shall not be permitted ~~to be reconditioned~~ .

(C) Knife Switches, Switches with Butt Contacts, and Bolted Pressure Contact Switches.

~~Knife~~ Reconditioned knife switches, switches with butt contacts, and bolted pressure contact switches shall be permitted ~~to be reconditioned~~ . ~~The reconditioning process shall use design qualified parts verified under applicable standards and shall be performed in accordance with any instructions provided by the manufacturer.~~ If equipment has been damaged by fire, products of combustion, corrosive influences, or water, it shall be specifically evaluated by its manufacturer or a qualified testing laboratory prior to being returned to service. ~~Reconditioned switches shall be listed or field labeled as reconditioned and marked in accordance with 110.21(A)(2) .~~

(D) Molded-Case Switches.

Reconditioned molded-case switches shall not be permitted.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Wed Feb 09 10:09:58 EST 2022

Committee Statement

Committee Statement: The Correlating Committee has revised the text for parallel construction and usability of the Code.

Second Revision No. 7860-NFPA 70-2021 [Section No. 404.16]

Second Correlating Revision No. 91-NFPA 70-2022 [New Section after 406.1]

406.2 Reconditioned Equipment.

Reconditioned receptacles, attachment plugs, cord connectors, and flanged surface devices shall not be permitted.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Wed Feb 09 11:28:08 EST 2022

Committee Statement

Committee Statement: The Correlating Committee relocates the second sentence in 406.3(A) and the second sentence in 406.7 to new section 406.2 reconditioned equipment for consistency and usability of the code.

Second Correlating Revision No. 89-NFPA 70-2022 [Section No. 406.3(A)]

(A) Receptacles.

Receptacles shall be listed and marked with the manufacturer's name or identification and voltage and ampere ratings. ~~Receptacles shall not be reconditioned.~~

Submitter Information Verification

Committee: NEC-AAC

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Committee Statement

Committee Statement: The Correlating Committee relocates the second sentence in 406.3(A) and the second sentence in 406.7 to new section 406.2 reconditioned equipment for consistency and usability of the code.

Second Revision No. 8162-NFPA 70-2021 [Section No. 406.3(A)]

Second Correlating Revision No. 13-NFPA 70-2022 [Section No. 406.3(D)]

(D) ~~Receptacles for Copper-Clad Aluminum Conductors~~ Receptacle Terminations .

Receptacle terminations shall be in accordance with the following:

(1) Terminals of 15-ampere and 20-ampere receptacles not marked CO/ALR shall be used with copper and copper-clad aluminum conductors only.

(2) Terminals marked CO/ALR shall be permitted to be used with aluminum, copper, and copper-clad aluminum conductors ~~that are sized in accordance with 240.4(D)~~ .

(3) ~~Screwless~~ Receptacles installed using screwless terminals of the conductor push-in type construction (also known as *push-in-terminals*) ~~employed in a receptacle~~ shall be installed on not greater than 15-ampere branch circuits and shall be connected with 14 AWG solid copper wire only unless listed and marked for other types of conductors .

Informational Note: See UL 498, *Attachment Plugs and Receptacles* , for information regarding screwless terminals of various type constructions employed on receptacles. Screwless terminals of the separable-terminal assembly, spring-action clamp, and insulation-displacement type constructions are not classified in UL 498 as screwless terminals of the conductor push-in type construction (also known as push-in terminals).

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 10:40:45 EST 2022

Committee Statement

Committee Statement: As written, the sentence implies that screwless terminal receptacles are the only receptacle type permitted on 15 A branch circuits. Similar wording, which addresses this issue appears in Section 404.14(D) for switches. Text for 406 is revised for clarity and to align with text in 404.14.

Second Revision No. 8137-NFPA 70-2021 [Section No. 406.3(D)]

Second Correlating Revision No. 90-NFPA 70-2022 [Section No. 406.7]

406.7 Attachment Plugs, Cord Connectors, and Flanged Surface Devices.

All attachment plugs, cord connectors, and flanged surface devices (inlets and outlets) shall be listed and marked with the manufacturer's name or identification and voltage and ampere ratings. ~~Attachment plugs, cord connectors, and flanged surface devices shall not be reconditioned.~~

(A) Construction of Attachment Plugs and Cord Connectors.

Attachment plugs and cord connectors shall be constructed so that there are no exposed current-carrying parts except the prongs, blades, or pins. The cover for wire terminations shall be a part that is essential for the operation of an attachment plug or connector (dead-front construction).

(B) Connection of Attachment Plugs.

Attachment plugs shall be installed so that their prongs, blades, or pins are not energized unless inserted into an energized receptacle or cord connectors. No receptacle shall be installed so as to require the insertion of an energized attachment plug as its source of supply.

(C) Attachment Plug Ejector Mechanisms.

Attachment plug ejector mechanisms shall not adversely affect engagement of the blades of the attachment plug with the contacts of the receptacle.

(D) Flanged Surface Inlet.

A flanged surface inlet shall be installed such that the prongs, blades, or pins are not energized unless an energized cord connector is inserted into it.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Wed Feb 09 11:26:45 EST 2022

Committee Statement

Committee Statement: The Correlating Committee relocates the second sentence in 406.3(A) and the second sentence in 406.7 to new section 406.2 reconditioned equipment for consistency and usability of the code.

Second Revision No. 8163-NFPA 70-2021 [Section No. 406.7]

Second Correlating Revision No. 14-NFPA 70-2022 [Section No. 406.12]

406.12 Tamper-Resistant Receptacles.

All 15- and 20-ampere, 125- and 250-volt nonlocking-type receptacles in the following locations shall be listed tamper-resistant receptacles:

(1) All dwelling units, boathouses, mobile homes and manufactured homes, including their attached and detached garages, accessory buildings ~~to dwelling units~~ , and ~~their~~ common areas

(2) Guest rooms and guest suites of hotels, motels, and their common areas

(3) Child care facilities

(4) Preschools and education facilities

(5) Within clinics, medical and dental offices, and outpatient facilities, the following spaces ~~and the like~~ :

a. Business offices accessible to the general public

b. Lobbies, ~~corridors,~~ and waiting spaces~~, and spaces used for patient sleeping~~

c. Spaces of nursing homes and limited care facilities covered in 517.10(B)(2) ~~patient sleeping rooms~~

(6) Places of awaiting transportation, gymnasiums, skating rinks, fitness centers, and auditoriums

(7) Dormitory units

(8) Residential care/assisted living facilities, social and substance abuse rehabilitation facilities, ~~convents,~~ and group homes

(9) Foster care facilities, nursing homes, and psychiatric hospitals

(10) Areas of agricultural buildings accessible to the general public and any common areas

Informational Note No. 1: See ANSI/NEMA WD 6-2016, *Wiring Devices — Dimensional Specifications*. This requirement would include receptacles identified as 5-15, 5-20, 6-15, and 6-20.

Informational Note No. 2: See NFPA 5000-2021, *Building Construction and Safety Code*, and the *International Building Code* (IBC)-2021 for more information on occupancy classifications for the types of facilities covered by this requirement.

Informational Note No. 3: Areas of agricultural building are frequently converted to hospitality areas. These areas can include petting zoos, stables, and buildings used for recreation or educational purposes where receptacles are installed.

Exception to (1) through (10): Receptacles in the following locations shall not be required to be tamper resistant:

(1) Receptacles located more than 1.7 m (5 ½ ft) above the floor

(2) Receptacles that are part of a luminaire or appliance

(2) ~~A single receptacle that is not readily accessible and that supplies one appliance, or a duplex receptacle that is not readily accessible and that supplies two appliances, where the receptacle outlet is installed within the space occupied by or designated for each appliance that, in normal use, is not easily moved from one place to another and that is cord-and-plug-connected in accordance with~~ 400.10(A)(6) ~~, (A)(7), or (A)(8)~~

(3) Where the receptacle outlet is installed within the space occupied by or designated for each appliance that, in normal use, is not easily moved from one place to another and is cord-and-plug-connected in accordance with 400.10(A)(6) , (A)(7), or (A)(8) the following are permitted:

a. A single receptacle that is not readily accessible and supplies one appliance

b. A duplex receptacle that is not readily accessible and supplies two appliances

(4) Nongrounding receptacles used for replacements as permitted in 406.4(D)(2)(a)

Supplemental Information

File Name	Description	Approved
NEC_406.12_SCR14.docx	For staff use	

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 10:49:26 EST 2022

Committee Statement

Committee Statement: Text is revised to remove references to all of Chapters 1-4. The intent is to refer to those facilities covered in 517.10(B)(2); therefore the list item is revised for clarity and to comply with the NEC Style Manual.

Second Correlating Revision No. 78-NFPA 70-2022 [Section No. 408.8]

408.2 ~~Reconditioning of~~ Reconditioned Equipment.

~~Reconditioning~~ The use of reconditioned equipment within the scope of this article shall be limited as described in 408.2(A) and (B). ~~The reconditioning process shall use design qualified parts verified under applicable standards and be performed in accordance with any instructions provided by the manufacturer.~~ If equipment has been damaged by fire, products of combustion, corrosive influences, or water, it shall be specifically evaluated by its manufacturer or a qualified testing laboratory prior to being returned to service. ~~Reconditioned equipment shall be listed or field labeled as reconditioned switchboards and marked in accordance with 110.21(A)(2) .~~

(A) Panelboards.

~~Panelboards~~ Reconditioned panelboards shall not be permitted ~~to be reconditioned. This shall not prevent the replacement of a panelboard within an enclosure. In the event the replacement has not been listed for the specific enclosure and the available fault current is greater than 10,000 amperes, the completed work shall be field labeled, and any previously applied listing marks on the cabinet that pertain to the panelboard shall be removed~~ .

(B) Switchboards and Switchgear.

~~Switchboards~~ Reconditioned switchboards and switchgear, or sections of switchboards or switchgear, shall be permitted ~~to be reconditioned. Reconditioned switchboards and switchgear shall be listed or field labeled as reconditioned~~ .

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Wed Feb 09 10:15:37 EST 2022

Committee Statement

Committee Statement: The Correlating Committee relocates section 408.8 to 408.2 for consistency and usability of the code.

Committee Comment No. 7583-NFPA 70-2021 [Section No. 408.8]

Second Correlating Revision No. 79-NFPA 70-2022 [Section No. 410.7]

410.2 Reconditioned Equipment.

~~Luminaires~~ Reconditioned luminaires , lampholders, ballasts, LED drivers, lamps, and retrofit kits shall not be permitted ~~to be reconditioned~~ . If a retrofit kit is installed in a luminaire in accordance with the installation instructions, the retrofitted luminaire shall not be considered reconditioned.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Wed Feb 09 10:19:49 EST 2022

Committee Statement

Committee Statement: The Correlating Committee relocates section 410.7 to 410.2 for consistency and usability of the code.

SR-8164-NFPA 70-2021

Second Correlating Revision No. 15-NFPA 70-2022 [Section No. 410.44]

410.44 Connection to the Equipment Grounding Conductor.

Luminaires and equipment that require connection to an equipment grounding conductor in accordance with 410.42 ~~410.42(A) shall be provided with means for connecting a wire-type~~ shall be mechanically connected to an equipment grounding conductor ~~as specified in 250.118 and is sized in accordance with 250.122~~ .

Exception No. 1: Replacement luminaires shall be permitted to connect an equipment grounding conductor in the same manner as replacement receptacles in compliance with 250.130(C). The luminaire shall then comply with 410.42.

Exception No. 2: Where no equipment grounding conductor exists at the outlet, replacement luminaires that are GFCI protected or do not have exposed conductive parts shall not be required to be connected to an equipment grounding conductor.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 10:53:36 EST 2022

Committee Statement

Committee Statement: Revision made to comply with the NEC Style Manual 4.1.1 general requirements contained in Chapters 1 through 4 shall not be repeated in other articles of the document.

Second Revision No. 8171-NFPA 70-2021 [Section No. 410.44]

Second Correlating Revision No. 16-NFPA 70-2022 [Section No. 411.1]

411.1 Scope.

This article covers low voltage lighting systems and their associated components ~~operating at low voltage~~ .

~~*Exception: This article shall not apply to lighting systems and associated components that exceed 15 volts ac or 30 volts dc where wet contact is likely to occur.*~~

~~Informational Note: See 680.1 for swimming pools, fountains, and similar installations.~~

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 10:55:33 EST 2022

Committee Statement

Committee Statement: Revise the text for clarity.

Second Revision No. 8184-NFPA 70-2021 [Section No. 411.1]

Second Correlating Revision No. 61-NFPA 70-2022 [Section No. 422.18]

422.18 ~~Support of~~ Ceiling-Suspended (Paddle) Fans.

~~Ceiling-suspended (paddle) fans shall be supported independently of an outlet box or by one of the following:~~

(0) ~~A listed outlet box or listed outlet box system identified for fan support installed in accordance with 314.27(C)~~

(0) ~~A listed outlet box system, a listed weight-supporting ceiling receptacle, and a compatible factory-installed weight-supporting attachment fitting that is installed in accordance with 314.27(E)~~

(A) Support.

Ceiling-suspended (paddle) fans shall be supported independently of an outlet box or by one of the following:

(1) A listed outlet box or listed outlet box system identified for fan support installed in accordance with 314.27(C)

(2) A listed outlet box system, a listed weight-supporting ceiling receptacle, and a compatible factory-installed weight-supporting attachment fitting that is installed in accordance with 314.27(E)

(B) Location.

No metal parts of ceiling-suspended (paddle) fans in bathrooms and shower spaces shall be located within a zone measured 900 mm (3 ft) horizontally and 2.5 m (8 ft) vertically from the top of the bathtub rim or shower stall threshold. This zone is all-encompassing and shall include the space directly over the tub or shower stall.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 16:57:56 EST 2022

Committee Statement

Committee Statement: The term “metallic” was replaced with the term “metal” in accordance with Section 3.2.1 of the NEC Style Manual.

Second Revision No. 8353-NFPA 70-2021 [Section No. 422.18]

Second Correlating Revision No. 62-NFPA 70-2022 [Section No. 424.66]

424.66 Installation.

Duct heaters shall be installed in accordance with the manufacturer's instructions in such a manner that the operation of the duct heater does not create a hazard to persons or property. Furthermore, duct heaters shall be located with respect to building construction and other equipment so as to permit access to the heater and the heater control. Working space shall be maintained ~~to~~ in accordance with 110.26(A)(4) and shall permit replacement of controls and heating elements and for adjusting and cleaning of controls and other parts requiring such attention. ~~See 110.26~~ .

Informational Note: ~~For additional installation information, see~~ ~~NFPA 90A -2021~~ See NFPA 90A , *Standard for the Installation of Air-Conditioning and Ventilating Systems*, and NFPA 90B~~-2021~~ , *Standard for the Installation of Warm Air Heating and Air-Conditioning Systems*, for additional installation information .

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 16:59:57 EST 2022

Committee Statement

Committee Statement: For correlation and consistency with Global SR 7522, the Correlating Committee directs that the date designation of NFPA 90A and NFPA 90B be removed.

Second Revision No. 8278-NFPA 70-2021 [Section No. 424.66]

Second Correlating Revision No. 63-NFPA 70-2022 [Section No. 425.2]

425.3 Other Articles.

Fixed industrial process heating equipment incorporating a hermetic refrigerant motor-compressor shall ~~also~~ additionally comply with ~~the applicable provisions of~~ Table 425.3.

Table 425.3 Other Articles

Equipment	Article
Motors, motor circuits, and controllers	430
Air-conditioning and refrigerating equipment	440 (Parts I through IV)

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 17:01:45 EST 2022

Committee Statement

Committee Statement: The section is re-numbered to 425.3 to achieve parallel numbering with other Chapter 4 articles for correlation. The reference to all parts of Article 430 is removed as it is redundant.

Second Revision No. 8355-NFPA 70-2021 [Section No. 425.2]

Second Correlating Revision No. 81-NFPA 70-2022 [New Section after 430.1]

430.2 Reconditioned Motors.

Reconditioned motors shall be permitted if the reconditioning has been conducted in accordance with the manufacturer's instructions or, if no instructions are provided, nationally recognized standards.

Reconditioned motors identified for use in hazardous (classified) locations shall be listed as reconditioned if installed in hazardous (classified) locations.

Informational Note: See ANSI/EASA AR100-2020, *Recommended Practice for the Repair of Rotating Electrical Apparatus* , for information on the rewinding and repair of motors.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Wed Feb 09 10:30:52 EST 2022

Committee Statement

Committee Statement: Section 430.2 is revised in 3 places to change "when" to "if," as a condition is specified, rather than a time. See 3.3.4 in the NEC Style Manual. The second sentence is modified for clarity to align with the definition of hazardous (classified) locations in Article 100 and with the title of Article 500. See "standard terms" in 4.2.3 of the NEC Style Manual.

Second Revision No. 7504-NFPA 70-2021 [New Section after 430.1]

Second Correlating Revision No. 3-NFPA 70-2022 [Section No. 430.6]

430.6 Conductor Ampacity and Motor Rating Determination.

The size of conductors supplying equipment covered by this article shall be selected from the ampacity tables in ~~accordance with~~ 310.15 or shall be calculated in accordance with 310.14(B). Where flexible cord is used, the size of the conductor shall be selected in accordance with 400.5. The required conductor ampacity and motor ratings shall be determined in accordance with 430.6(A), (B), (C), and (D).

(A) General Motor Applications.

For general motor applications, current ratings shall be determined based on 430.6(A)(1) and (A)(2).

(1) Table Values.

Other than for motors built for low speeds (less than 1200 RPM) or high torques, and for multispeed motors, the values given in Table 430.247, Table 430.248, Table 430.249, and Table 430.250 shall be used instead of the actual current rating marked on the motor nameplate to determine the following:

(1) Ampacity of conductors

(2) ~~Ampere~~ Current ratings of switches

(3) ~~Ampere~~ Current ratings of branch-circuit short-circuit and ground-fault protection

Where a motor is marked in amperes, but not horsepower, the horsepower rating shall be assumed to be that corresponding to the value given in Table 430.247, Table 430.248, Table 430.249, and Table 430.250, interpolated if necessary.

Exception No. 1: Multispeed motors shall be in accordance with 430.22(B) and 430.52.

Exception No. 2: For equipment that employs a shaded-pole or permanent-split capacitor-type fan or blower motor that is marked with the motor type~~, the motor~~ and the marking on the equipment nameplate is not less than the current marked on the fan or blower motor nameplate, the full-load current marked on the nameplate of the ~~equipment in which the fan or blower motor is employed~~ appliance shall be used ~~instead of the horsepower rating~~ to determine the ampacity ~~or rating of the disconnecting means, the~~ of branch-circuit conductors~~, the motor controller, the branch-circuit short-circuit and ground-fault protection, and the separate overload protection. This marking on the equipment nameplate shall not be less than the current marked on the fan or blower motor nameplate.~~ in addition to the current ratings of the following:

(1) Disconnecting means

(2) Motor controllers

(3) Short-circuit and ground-fault protective devices

(4) Separate overload protective devices

Exception No. 3: For a listed motor-operated appliance that is marked with both motor horsepower and full-load current, the motor full-load current marked on the nameplate of the appliance shall be used instead of the horsepower rating on the appliance nameplate to determine the ampacity ~~or rating~~ of ~~the disconnecting means, the~~ branch-circuit conductors~~, the motor controller, the branch-circuit short-circuit and ground-fault protection, and any separate overload protection.~~ in addition to the current ratings of the following:

(1) Disconnecting means

(2) Motor controllers

(3) Short-circuit and ground-fault protective devices

(4) Separate overload protective devices

(2) Nameplate Values.

The motor nameplate current ratings shall be used to determine the values for the following:

(1) Separate motor overload protection

(2) For motors built for low speeds (less than 1200 RPM), high torques, canned pumps, or multispeed motors, the following:

   a. Ampacity of conductors

   b. ~~Ampere~~ Current ratings of switches

   c. ~~Ampere~~ Current ratings of branch-circuit short-circuit and ground-fault protection

(3) Large motors exceeding the values in Part XIV shall use the nameplate ~~ampacity~~ current rating for conductor sizing.

(B) Torque Motors.

For torque motors, the rated current shall be locked-rotor current, and this nameplate current shall be used to determine the ampacity of the branch-circuit conductors covered in 430.22 and 430.24, the ~~ampere~~ current rating of the motor overload protection, and the ~~ampere~~ current rating of motor branch-circuit short-circuit and ground-fault protection in accordance with 430.52(B).

Informational Note: See 430.83(D) and 430.110 for information on motor controllers and disconnecting means.

(C) Alternating-Current Adjustable Voltage Motors.

For motors used in alternating-current, adjustable voltage, variable torque drive systems, the ampacity of conductors, or ~~ampere~~ current ratings of switches, branch-circuit short-circuit and ground-fault protection, and so forth, shall be based on the maximum operating current marked on the motor nameplate or the control nameplate, or both. If the maximum operating current does not appear on the nameplate, the ~~ampacity~~ current rating determination shall be based on 150 percent of the values given in Table 430.249 and Table 430.250.

(D) Valve Actuator Motor Assemblies.

For valve actuator motor assemblies (VAMs), the rated current shall be the nameplate full-load current, and this current shall be used to determine the maximum rating or setting of the motor branch-circuit short-circuit and ground-fault protective device and the ampacity of the conductors.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 09:52:03 EST 2022

Committee Statement

Committee Statement: List items in 430.6(A)(1), Exception Nos. (2) and (3) refer to specific devices. List item 4 refers to a type of protection rather than a specific device. To address this oversight, the term “protection” is changed to “protective devices” in list item 4 in exceptions (2) and (3).

Second Revision No. 7802-NFPA 70-2021 [Section No. 430.6]

Second Correlating Revision No. 4-NFPA 70-2022 [Section No. 430.52(C)]

(C) Rating or Setting.

(1) In Accordance with Table 430.52(C)(1).

A protective device that has a rating or setting not exceeding the value calculated according to the values given in Table 430.52(C)(1) shall be used unless otherwise permitted in 430.52(C)(1)(a) or (C)(1)(b) .

Table 430.52(C)(1) Maximum Rating or Setting of Motor Branch-Circuit Short-Circuit and Ground-Fault Protective Devices

Type of Motor	Percentage of Full-Load Current			
	Nontime Delay Fuse[1]	Dual Element (Time-Delay) Fuse[1]	Instantaneous-Trip Breaker	Inverse Time Breaker[2]
Single-phase motors	300	175	800	250
AC polyphase motors other than wound-rotor	300	175	800	250
Squirrel cage — other than Design B energy-efficient — and Design B premium efficiency	300	175	800	250
Design B energy-efficient and Design B premium efficiency	300	175	1100	250
Synchronous[3]	300	175	800	250
Wound-rotor	150	150	800	150
DC (constant voltage)	150	150	250	150

Note: See 430.54 for certain exceptions to the values specified.

[1]The values in the Nontime Delay Fuse column apply to time-delay Class CC fuses.

[2]The values given in the last column also cover the ratings of nonadjustable inverse time types of circuit breakers that can be modified as in ~~430.52(C)(1), Exceptions No. 1 and No. 2~~ 430.52(C)(1)(a) and (C)(1)(b) .

[3]Synchronous motors of the low-torque, low-speed type (usually 450 rpm or lower), such as those used to drive reciprocating compressors, pumps, and so forth, that start unloaded, do not require a fuse rating or circuit-breaker setting in excess of 200 percent of full-load current.

~~Exception No. 1: Where the values for branch-circuit short-circuit and ground-fault protective devices determined by Table 430.52(C)(1) do not correspond to the standard sizes or ratings of fuses, nonadjustable circuit breakers, thermal protective devices, or possible settings of adjustable circuit breakers, a higher size, rating, or possible setting that does not exceed the next higher standard ampere rating according to 240.6 shall be permitted.~~

~~Exception No. 2: Where the rating specified in Table 430.52(C)(1) , or the rating modified by Exception No. 1, is not sufficient for the starting current of the motor, the following applies:~~

(0) ~~The rating of a nontime-delay fuse not exceeding 600 amperes or a time-delay Class CC fuse shall be permitted to be increased but shall in no case exceed 400 percent of the full-load current.~~

(0) ~~The rating of a time-delay (dual-element) fuse shall be permitted to be increased but shall in no case exceed 225 percent of the full-load current.~~

(0) ~~The rating of an inverse time circuit breaker shall be permitted to be increased but shall in no case exceed 400 percent for full-load currents of 100 amperes or less or 300 percent for full-load currents greater than 100 amperes.~~

(0) ~~The rating of a fuse of 601–6000 ampere classification shall be permitted to be~~

~~*increased but shall in no case exceed 300 percent of the full-load current.*~~

(a) Where the values ~~for branch-circuit short-circuit and ground-fault protective devices~~ as determined by Table 430.52(C)(1) do not correspond to the standard ~~sizes or~~ ampere ratings ~~of fuses, nonadjustable circuit breakers, thermal protective devices, or possible~~ and settings ~~of adjustable circuit breakers, a higher size, rating, or possible setting that does not exceed~~ provided in 240.6, the next higher standard ~~ampere~~ rating ~~according to 240.6~~ or setting shall be permitted.

(b) Where the rating specified in Table 430.52(C)(1), or the rating modified by ~~Exception No. 1,~~ 430.52(C)(1)(a), is not sufficient for the starting current of the motor, any of the following ~~applies~~ shall apply :

(1) The rating of a nontime-delay fuse not exceeding 600 amperes or a time-delay Class CC fuse shall be permitted to be increased but shall in no case exceed 400 percent of the full-load current.

(2) The rating of a time-delay (dual-element) fuse shall be permitted to be increased but shall in no case exceed 225 percent of the full-load current.

(3) The rating of an inverse time circuit breaker shall be permitted to be increased but shall in no case exceed 400 percent for full-load currents of 100 amperes or less or 300 percent for full-load currents greater than 100 amperes.

(4) The rating of a fuse of 601–6000 ampere classification shall be permitted to be increased but shall in no case exceed 300 percent of the full-load current.

Informational Note: See Informative Annex D, Example D8, for an example of motor branch-circuit short-circuit and ground-fault rating and setting and Informational Note Figure 430.1 for an example location.

(2) Overload Relay Table.

Where maximum branch-circuit short-circuit and ground-fault protective device ratings are shown in the manufacturer's overload relay table for use with a motor controller or are otherwise marked on the equipment, they shall not be exceeded even if higher values are allowed as shown above.

(3) Instantaneous-Trip Circuit Breaker.

An instantaneous-trip circuit breaker shall be permitted if the conditions of 430.52(C)(3)(a) and (C)(3)(b) are met. ~~used only if adjustable and if part of a listed combination motor controller having coordinated motor overload and short-circuit and ground-fault protection in each conductor, and the setting is adjusted to no more than the value specified in Table 430.52(C)(1)~~

(a) *Application.* Instantaneous-trip circuit breakers shall be adjustable and part of a listed combination motor controller having coordinated motor overload and short-circuit and ground-fault protection in each conductor.

Informational Note No. 1: Instantaneous-trip circuit breakers are also known as motor-circuit protectors (MCPs).

Informational Note No. 2: For the purpose of this article, instantaneous-trip circuit breakers ~~may~~ could include a damping means to accommodate a transient motor inrush current without nuisance tripping of the circuit breaker.

(b) *Setting.* The instantaneous-trip circuit breaker shall be adjusted to a setting in accordance with one of the following:

(1) No greater than the value specified in Table 430.52(C)(1)

(2) Where the value specified in Table 430.52(C)(1) is not sufficient for the starting current of the motor, one of the following settings shall be permitted:

a. Motors other than design B energy-efficient and Design B premium efficiency motors shall be permitted to be increased but shall in no case exceed 1300 percent of the motor full-load current.

b. Design B energy-efficient and Design B premium efficiency motors shall be permitted to be increased but shall in no case exceed 1700 percent of the motor full-load current.

c. Where an engineering analysis determines the value is not sufficient for the starting current of the motor, it shall not be necessary to first apply the value specified in Table 430.52(C)(1).

Informational Note No. 3: See NEMA MG 1-2016, *Motors and Generators*, Part 12.59 for additional information on the requirements for a motor to be classified "energy efficient."

(3) Where the motor full-load current is 8 amperes or less, the setting of the instantaneous-trip circuit breaker with a continuous current rating of 15 amperes or less in a listed combination motor controller that provides coordinated motor branch-circuit overload and short-circuit and ground-fault protection shall be permitted to be increased to the value marked on the motor controller.

~~*Exception No. 1: Where the setting specified in Table 430.52(C)(1) is not sufficient for the starting current of the motor, the setting of an instantaneous trip circuit breaker shall be permitted to be increased but shall in no case exceed 1300 percent of the motor full-load current for other than Design B energy-efficient and Design B premium efficiency motors, and no more than 1700 percent of the motor full-load current for Design B energy-efficient and Design B premium efficiency motors. Trip settings above 800 percent for other than Design B energy-efficient and Design B premium efficiency motors, and above 1100 percent for Design B energy-efficient or Design B premium efficiency motors shall be permitted where the need has been demonstrated by an engineering evaluation. In such cases, it shall not be necessary to first apply an instantaneous-trip circuit breaker at 800 percent or 1100 percent.*~~

~~*Exception No. 2: Where the motor full-load current is 8 amperes or less, the setting of the instantaneous-trip circuit breaker with a continuous current rating of 15 amperes or less in a listed combination motor controller that provides coordinated motor branch-circuit overload and short-circuit and ground-fault protection shall be permitted to be increased to the value marked on the motor controller.*~~

(4) Multispeed Motor.

For a multispeed motor, a single short-circuit and ground-fault protective device shall be permitted for two or more windings of the motor if the rating of the protective device does not exceed the above applicable percentage of the nameplate rating of the smallest winding protected.

Exception: For a multispeed motor, a single short-circuit and ground-fault protective device shall be permitted to be used and sized according to the full-load current of the highest current winding, where all of the following conditions are met:

(1) Each winding is equipped with individual overload protection sized according to its full-load current.

(2) The branch-circuit conductors supplying each winding are sized according to the full-load current of the highest full-load current winding.

(3) The motor controller for each winding has a horsepower rating not less than that required for the winding having the highest horsepower rating.

(5) Power Electronic Devices.

Semiconductor fuses intended for the protection of electronic devices shall be permitted in lieu of devices listed in Table 430.52(C)(1) for power electronic devices, associated electromechanical devices (such as bypass contactors and isolation contactors), and conductors in a solid-state motor controller system if the marking for replacement fuses is provided adjacent to the fuses.

(6) Self-Protected Combination Motor Controller.

A listed self-protected combination motor controller shall be permitted in lieu of the devices specified in Table 430.52(C)(1). Adjustable instantaneous-trip settings shall not exceed 1300 percent of the full-load motor current for other than Design B energy-efficient and Design B premium efficiency motors and not more than 1700 percent of the full-load motor current for Design B energy-efficient and Design B premium efficiency motors.

Informational Note: Proper application of self-protected combination motor controllers on 3-phase systems, other than solidly grounded wye, particularly on corner grounded delta systems, considers the self-protected combination motor controllers' individual pole-interrupting capability.

(7) Motor Short-Circuit Protector.

A motor short-circuit protector shall be permitted in lieu of devices listed in Table 430.52(C)(1) if the motor short-circuit protector is part of a listed combination motor controller having coordinated motor overload protection and short-circuit and ground-fault protection in each conductor and it will open the circuit at currents exceeding 1300 percent of the motor full-load current for other than Design B energy-efficient and Design B premium efficiency motors and 1700 percent of the motor full-load current for Design B energy-efficient and Design B premium efficiency motors.

Informational Note: A motor short-circuit protector, as used in this section, is a fused device and is not an instantaneous-trip circuit breaker.

Supplemental Information

File Name	Description	Approved
NEC_430.52_C_SCR4.docx	For staff use	

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 10:11:59 EST 2022

Committee Statement

Committee Statement: 430.52(C)(3)(a), Informational Note No. 2, change “may” (indicating permission) to “could” (indicating a possible condition). See 3.1.3 of the NEC Style Manual.

Second Correlating Revision No. 162-NFPA 70-2022 [Article 470]

Article 470 Resistors and Reactors

Part I. General

470.1 Scope.

This article covers the installation of separate resistors and reactors on electrical circuits.

Exception: This article does not cover resistors and reactors that are component parts of other apparatus.

470.2 Reconditioned Equipment.

(A) Resistors.

Reconditioned resistors shall not be permitted.

(B) Reactors.

Reconditioned reactors shall be permitted.

Part II. 1000 Volts, Nominal, or Less

470.10 Location.

Resistors and reactors shall not be placed where exposed to physical damage.

470.11 Space Separation.

A thermal barrier shall be required if the space between the resistors ~~and~~ or reactors and any combustible material is less than 305 mm (12 in.).

470.12 Conductor Insulation.

Insulated conductors used for connections between resistance elements and controllers shall be suitable for an operating temperature of not less than 90°C (194°F).

Exception: Other conductor insulations shall be permitted for the motor starting service.

~~**470.5** Reconditioning of Equipment.~~

~~Reconditioning of resistors shall not be permitted. Reconditioning of reactors shall be in accordance with the manufacturer's instructions or industry consensus standards.~~

Part III. Over 1000 Volts, Nominal

470.20 General.

(A) Protected Against Physical Damage.

Resistors and reactors shall be protected against physical damage.

(B) Isolated by Enclosure or Elevation.

Resistors and reactors shall be isolated by enclosure or elevation to protect personnel from accidental contact with energized parts.

(C) Combustible Materials.

Resistors and reactors shall not be installed in close enough proximity to combustible materials to constitute a fire hazard and shall have a clearance of not less than 305 mm (12 in.) from combustible materials.

(D) Clearances.

Clearances from resistors and reactors to grounded surfaces shall be adequate for the voltage involved.

(E) Temperature Rise from Induced Circulating Currents.

Metallic enclosures of reactors and adjacent metal parts shall be installed so that the temperature rise from induced circulating currents is not hazardous to personnel or does not constitute a fire hazard.

470.21 Grounding.

Resistor and reactor cases or enclosures shall be connected to the equipment grounding conductor.

Exception: Resistor or reactor cases or enclosures supported on a structure designed to operate at other than ground potential shall not be connected to the equipment grounding conductor.

470.22 Oil-Filled Reactors.

Installation of oil-filled reactors, in addition to the above requirements, shall comply with applicable requirements of Part II and Part III of Article 450.

~~**470.21** Reconditioning of Equipment.~~

~~Reconditioning of resistors shall not be permitted. Reconditioning of reactors shall be in accordance with the manufacturer's instructions or industry consensus standards.~~

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 15 21:10:27 EST 2022

Committee Statement

Committee Statement: Section 470.2 is revised for clarity, and to remove requirements redundant to those in 110.20.

Committee Comment No. 7591-NFPA 70-2021 [Article 470]

Second Correlating Revision No. 83-NFPA 70-2022 [Section No. 495.49]

495.49 Reconditioned Switchgear.

~~Switchgear~~ Reconditioned switchgear , or sections of switchgear, ~~within the scope of this article~~ shall be permitted ~~to be reconditioned. The reconditioning process shall use design qualified parts verified under applicable standards and be performed in accordance with any instructions provided by the manufacturer. Reconditioned switchgear shall be listed or field labeled as reconditioned, and previously applied listing marks, if any, within the portions reconditioned shall be removed~~ . If equipment has been damaged by fire, products of combustion, or water, it shall be specifically evaluated by its manufacturer or a qualified testing laboratory prior to being returned to service.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Wed Feb 09 10:41:11 EST 2022

Committee Statement

Committee Statement: The Correlating Committee added general requirements for reconditioned equipment in 495.2 to provide consistency and improve usability of the code. Users looking for information on reconditioned equipment will start at the general requirement and then look within the article for adjustments for specific equipment types. Section 495.49 was not relocated based on the location within Part III and applying specifically to switchgear.

Committee Comment No. 7752-NFPA 70-2021 [Section No. 495.49]

Second Correlating Revision No. 47-NFPA 70-2022 [Section No. 500.1]

500.1 Scope.

~~This article does not cover area classification and general requirements for the Zone system as described in 505.1 and 506.1. This *Code* does not address the unique risk and explosion hazards associated with explosives, pyrotechnics, and blasting agents.~~

~~Informational Note: See NFPA 497 -2021, *Recommended Practice for the Classification of Flammable Liquids, Gases, or Vapors and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas* , and NFPA 499 -2021, *Recommended Practice for the Classification of Combustible Dusts and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas* , for extracted information referenced in brackets. Only editorial changes were made to the extracted text to make it consistent with this *Code* .~~

(A) Covered.

This article covers area classification and general requirements ~~for Class I, Class II, and Class III, Division 1 and Division 2 locations~~ for electrical and electronic equipment and wiring rated at all voltages where fire or explosion hazards ~~may~~ might exist due to flammable gases, flammable liquid–produced vapors, combustible liquid–produced vapors, combustible dusts, combustible fibers/flyings, or ignitible fibers/flyings in the following:

(1) Class I, Division 1 or Class I, Division 2 hazardous (classified) locations

(2) Class II, Division 1 or Class II, Division 2 hazardous (classified) locations

(3) Class III, Division 1 or Class III, Division 2 hazardous (classified) locations

~~This article does not cover area classification and general requirements for the Zone system as described in 505.1 and 506.1. This *Code* does not address the unique risk and explosion hazards associated with explosives, pyrotechnics, and blasting agents.~~

Informational Note No. 1: See NFPA 497~~-2021~~ , *Recommended Practice for the Classification of Flammable Liquids, Gases, or Vapors and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas*, and NFPA 499~~-2021~~ , *Recommended Practice for the Classification of Combustible Dusts and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas*, for extracted information referenced in brackets. Only editorial changes were made to the extracted text to make it consistent with this *Code*.

Informational Note No. 2: See Article 100 for the definition of *restricted industrial establishment [as applied to hazardous (classified) locations]* .

(B) Not Covered.

This article does not cover electrical and electronic equipment and wiring rated at all voltages for the following:

(1) Zone 0, Zone 1, or Zone 2 hazardous (classified) locations

(2) Zone 20, Zone 21, or Zone 22 hazardous (classified) locations

(3) Locations subject to the unique risk and explosion hazards associated with explosives, pyrotechnics, and blasting agents

(4) Locations where pyrophoric materials are the only materials used or handled

(5) Features of equipment that involve nonelectrical potential sources of ignition (e.g., couplings, pumps, gearboxes, brakes, hydraulic and pneumatic motors, fans, engines, compressors)

Informational Note No. 1: Common nonelectrical potential sources of ignition include hot surfaces and mechanically generated sparks.

Informational Note No. 2: See ANSI/UL 80079-36, *Explosive Atmospheres — Part 36: Non-Electrical Equipment for Explosive Atmospheres — Basic Method and Requirements* , and ANSI/UL 80079-37, *Explosive Atmospheres — Part 37: Non-Electrical Equipment for Explosive Atmospheres — Non-Electrical Type of Protection Constructional Safety "c" Control of Ignition Source "b", Liquid Immersion "k"* , for additional information.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 16:08:57 EST 2022

Committee Statement

Committee Statement: The subdivisions in 90.2 do not use the word "Installations." The word "installations" is not necessary and may not be reflective of all content in each subdivision, which may be other than an installation. The Correlating Committee advises that article scope statements are the responsibility of the Correlating Committee and the Correlating Committee accepts the panel action as revised by this SCR.

Second Revision No. 7501-NFPA 70-2021 [Section No. 500.1]

Second Correlating Revision No. 48-NFPA 70-2022 [Section No. 500.6]

500.6 ~~Material Groups~~ Materials .

~~For purposes of testing, approval, and area classification, various air mixtures (not oxygen-enriched) shall be grouped in accordance with 500.6(A) and (B).~~

~~*Exception: Equipment identified for a specific gas, vapor, dust, or fiber/flying.*~~

~~Informational Note: This grouping is based on the characteristics of the materials. Facilities are available for testing and identifying equipment for use in the various atmospheric groups.~~

(A) Class I Group Classifications.

Class I groups shall be ~~according to~~ in accordance with 500.6(A)(1) through (A)(4).

~~Informational Note No. 1: Informational Note Nos. 2 and 3 apply to 500.6(A) .~~

Informational Note No. 1: The explosion characteristics of air mixtures of gases or vapors vary with the specific material involved. For Class I locations, Groups A, B, C, and D, the classification involves determinations of maximum explosion pressure and maximum safe clearance between parts of a clamped joint in an enclosure. It is necessary, therefore, that equipment be identified not only for class but also for the specific group of the gas or vapor that will be present.

Informational Note No. 2: Certain chemical atmospheres may have characteristics that require safeguards beyond those required for any of the Class I groups. Carbon disulfide is one of these chemicals because of its low autoignition temperature (90°C) and the small joint clearance permitted to arrest its flame.

(1) Group A.

Acetylene. [**497:**3.3.5.1.1]

(2) Group B.

Flammable gas, flammable liquid–produced vapor, or combustible liquid–produced vapor mixed with air that may burn or explode, having either a maximum experimental safe gap (MESG) value less than or equal to 0.45 mm or a minimum igniting current ratio (MIC ratio) less than or equal to 0.40. [**497:**3.3.5.1.2]

Informational Note: A typical Class I, Group B material is hydrogen.

(3) Group C.

Flammable gas, flammable liquid–produced vapor, or combustible liquid–produced vapor mixed with air that may burn or explode, having either a maximum experimental safe gap (MESG) value greater than 0.45 mm and less than or equal to 0.75 mm, or a minimum igniting current (MIC) ratio greater than 0.40 and less than or equal to 0.80. [**497:**3.3.5.1.3]

Informational Note: A typical Class I, Group C material is ethylene.

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(4) Group D.

Flammable gas, flammable liquid–produced vapor, or combustible liquid–produced vapor mixed with air that may burn or explode, having either a maximum experimental safe gap (MESG) value greater than 0.75 mm or a minimum igniting current (MIC) ratio greater than 0.80. [**497:**3.3.5.1.4]

Informational Note No. 1: A typical Class I, Group D material is propane. [**497:**3.3.5.1.4]

Informational Note No. 2: See ANSI/ASHRAE 15-~~2016~~, *Safety Standard for Refrigeration Systems*, for information on the classification of areas involving ammonia atmospheres.

(B) Class II Combustible Dust Group Classifications.

~~Class II groups~~ Combustible dust shall be grouped in accordance with 500.6(B)(1) through (B)(3).

(1) Group E.

Atmospheres containing combustible metal dusts, including aluminum, magnesium, and their commercial alloys, or other combustible dusts whose particle size, abrasiveness, and conductivity present similar hazards in the use of electrical equipment. [**499:**~~3.3.4.1~~ 3.3.8.1.1]

Informational Note: Certain metal dusts may have characteristics that require safeguards beyond those required for atmospheres containing the dusts of aluminum, magnesium, and their commercial alloys. For example, zirconium, thorium, and uranium dusts have extremely low ignition temperatures [as low as 20°C (68°F)] and minimum ignition energies lower than any material classified in any of the Class I or Class II groups.

(2) Group F.

Atmospheres containing combustible carbonaceous dusts that have more than 8 percent total entrapped volatiles (see ASTM D3175-2017, *Standard Test Method for Volatile Matter in the Analysis Sample of Coal and Coke*, for coal and coke dusts) or that have been sensitized by other materials so that they present an explosion hazard. [**499:**~~3.3.4.2~~ 3.3.8.1.2] Coal, carbon black, charcoal, and coke dusts are examples of carbonaceous dusts. [**499:**~~A.3.3.4.2~~ A.3.3.8.1.2]

Informational Note: Testing of specific dust samples, following established ASTM testing procedures, is a method used to identify the combustibility of a specific dust and the need to classify those locations containing that material as Group F.

(3) Group G.

Atmospheres containing combustible dusts not included in Group E or Group F, including flour, grain, wood, plastic, and chemicals. [**499:**~~3.3.4.3~~ 3.3.8.1.3]

Informational Note No. 1: See NFPA 499-~~2021~~ , *Recommended Practice for the Classification of Combustible Dusts and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas*, for information on group classification of Class II materials.

Informational Note No. 2: The explosion characteristics of air mixtures of dust vary with the materials involved. For Class II locations, Groups E, F, and G, the classification involves the tightness of the joints of assembly and shaft openings to prevent the entrance of dust in the dust-ignitionproof enclosure, the blanketing effect of layers of dust on the equipment that may cause overheating, and the ignition temperature of the dust. It is necessary, therefore, that equipment be identified not only for the class but also for the specific group of dust that will be present.

Informational Note No. 3: See ANSI/IEEE C2-~~2017~~ , *National Electrical Safety Code*, Section 127A, Coal Handling Areas. Certain dusts might require additional precautions due to chemical phenomena that can result in the generation of ignitible gases.

(C) Class III Combustible Fibers/Flyings.

~~Fibers/flyings~~ Combustible fibers/flyings shall not be ~~in accordance with 500.6(C)(1) and (B)(2)~~ further grouped .

~~**(1)** Combustible Fibers/Flyings.~~

~~Combustible fibers/flyings are materials where any dimension is greater than 500 µm in nominal size that can form an explosive mixture when suspended in air at standard atmospheric pressure and temperature.~~

~~**(2)** Ignitible Fibers/Flyings.~~

~~Ignitible fibers/flyings are materials larger than 500 µm in nominal size that are not likely to be in suspension in quantities to be explosive but may produce an ignitible layer fire hazard.~~

(D) Class III Ignitible Fibers/Flyings.

Ignitible fibers/flyings ~~are materials larger than 500 µm in nominal size that are not likely to be in suspension in quantities to be explosive but may produce an ignitible layer fire hazard~~ shall not be further grouped .

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 16:11:58 EST 2022

Committee Statement

Committee Statement: The revision is made to meet the requirements of NEC Style Manual Section 4.2.3.

Second Revision No. 7539-NFPA 70-2021 [Section No. 500.6]

Second Correlating Revision No. 49-NFPA 70-2022 [Section No. 500.7(K)]

(K) ~~Combustible Gas~~ Detection System for Flammable Gases .

A ~~combustible gas~~ detection system for flammable gases shall be permitted as a means of protection in restricted industrial establishments ~~with restricted public access and where the conditions of maintenance and supervision ensure that only qualified persons service the installation~~ .

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(1) General.

Any gas detection system used as a protection technique shall meet all of the requirements in 500.7(K)(1)(a) through (K)(1)(e).

(a) The gas detection equipment used shall be listed for Class I, Division 1 and listed for the detection of the specific gas or vapor to be encountered.

(b) The gas detection system shall not use portable or transportable equipment or temporary wiring methods.

(c) The gas detection system shall only use point-type sensors. The system shall be permitted to be augmented with open-path (line-of-sight)–type sensors, but open-path–type sensors shall not be the basis for this protection technique.

(d) The type of detection equipment~~,~~ and its listing, installation location(s), alarm and shutdown criteria, and calibration frequency shall be documented where ~~combustible~~ gas detectors are used as a protection technique.

(e) The applications for the use of ~~combustible~~ gas detection systems as a protection technique shall be limited to 500.7(K)(2), (K)(3), or (K)(4).

Informational Note No. 1: See ~~ISA-TR12.13.03-2009, *Guide for Combustible Gas Detection as a Method of Protection*~~ ANSI/UL 121303, *Guide for Use of Detectors for Flammable Gases*, or ANSI/FM 121303, *Guide for Use of Detectors for Flammable Gases*, for additional information.

Informational Note No. 2: See ANSI/UL 60079-29-1-~~2019~~, ~~*Explosive atmospheres — Part 29-1: Gas detectors — Performance requirements of detectors for flammable gases*~~*Explosive Atmospheres — Part 29-1: Gas Detectors — Performance Requirements of Detectors for Flammable Gases*, or ANSI/FM 60079-29-1-~~2019~~, ~~*Explosive atmospheres — Part 29-1: Gas detectors — Performance requirements of detectors for flammable gases*~~*Explosive Atmospheres — Part 29-1: Gas Detectors — Performance Requirements of Detectors for Flammable Gases*, for additional information.

Informational Note No. 3: See ANSI/API RP 500-~~2012~~, *Recommended Practice for Classification of Locations for Electrical Installations at Petroleum Facilities Classified as Class I, Division 1 and Division 2*, for additional information.

Informational Note No. 4: See ANSI/UL 60079-29-2-~~2018~~, ~~*Explosive atmospheres — Part 29-2: Gas detectors — Selection, installation, use and maintenance of detectors for flammable gases and oxygen*~~ *Explosive Atmospheres — Part 29-2: Gas Detectors — Selection, Installation, Use and Maintenance of Detectors for Flammable Gases and Oxygen*, or ANSI/FM-60079-29-2-~~2018~~, ~~*Explosive atmospheres — Part 29-2: Gas detectors — Selection, installation, use and maintenance of detectors for flammable gases and oxygen*~~*Explosive atmospheres — Part 29-2: Gas Detectors — Selection, Installation, Use and Maintenance of Detectors for Flammable Gases and Oxygen*, for additional information.

(2) Inadequate Ventilation.

A location, enclosed space, or building that is classified as a Class I, Division 1 location due to inadequate ventilation~~, that~~ and is provided with a ~~combustible gas~~ detection system for flammable gases shall be permitted to ~~utilize~~ use electrical equipment, installation methods, and wiring practices suitable for Class I, Division 2 installations. Sensing a gas concentration of not more than 40 percent of the lower flammable limit or a gas detector system malfunction shall activate an alarm (audible or visual, or both, as most appropriate for the area).

(3) Interior of a Building or Enclosed Space.

Any building or enclosed space that does not contain a source of flammable ~~gas~~ gases or vapors that is located in, or ~~with~~ has an opening into, a Class I, Division 2 hazardous (classified) location ~~that~~ and is provided with a ~~combustible gas~~ detection system for flammable gases shall be permitted to ~~utilize~~ use electrical equipment, installation methods, and wiring practices suitable for unclassified installations under all of the following conditions:

(1) An alarm (audible or visual, or both) shall be sounded at not more than 20 percent of the lower flammable limit.

(2) Sensing a gas concentration of not more than 40 percent of the lower flammable limit or a gas detector system malfunction shall ~~both~~ activate an alarm (audible or visual, or both, as most appropriate for the area) and initiate automatic disconnection of power from all electrical devices in the area that are not suitable for Class I, Division 2.

(3) The power disconnecting device(s) shall be suitable for Class I, Division 1 if located inside the building or enclosed space. If the disconnecting device(s) is located outside the building or enclosed space, it shall be suitable for the location in which it is installed.

Redundant or duplicate equipment (such as sensors) shall be permitted to be installed to avoid disconnecting electrical power when equipment malfunctions are indicated.

When automatic shutdown could introduce additional or increased hazard, this technique shall not be permitted.

(4) Interior of a Control Panel.

Inside the interior of a control panel containing instrumentation or other equipment ~~utilizing~~ using or measuring flammable liquids, gases, or vapors~~,~~ which is provided with ~~combustible gas~~ a detection ~~equipment~~ system for flammable gases shall be permitted to ~~utilize~~ use electrical equipment, installation methods, and wiring practices suitable for Class I, Division 2 installations.

An alarm (audible or visual, or both) shall be sounded at not more than 40 percent of the lower flammable limit.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 16:17:41 EST 2022

Committee Statement

Committee Statement: The revision is necessary for correlation and consistency with changes that removed the word “combustible” within this section. This was identified in an affirmative ballot statement.

SR-7787-NFPA 70-2021

Second Correlating Revision No. 50-NFPA 70-2022 [Section No. 501.10(A)(2)]

(2) Flexible Connections.

~~Where flexible connections are necessary, as at motor terminals~~ If flexibility is necessary to minimize the transmission of vibration from equipment during operation or to allow for movement after installation during maintenance , one of the following shall be permitted:

(1) Flexible fittings listed for the location.

(2) Flexible cord in accordance with 501.140, terminated with cord connectors listed for the location.

(3) In restricted industrial establishments, ~~with restricted public access, where the conditions of maintenance and supervision ensure that only qualified persons service the installation,~~ for applications limited to 600 volts nominal or less~~, and~~ where the cable is not subject to physical damage~~,~~ and is terminated with fittings listed for the location, Type TC-ER-HL cable. The cable shall be listed for use in Class I, Division 1 or Zone 1 locations and shall be installed in accordance with 336.10.

Informational Note No. 1: See ANSI/UL 2225~~-2013~~ , *Cables and Cable-Fittings for Use in Hazardous (Classified) Locations*, for information on construction, testing, and marking of cables and cable fittings.

(4) In restricted industrial establishments, ~~with restricted public access, where the conditions of maintenance and supervision ensure that only qualified persons service the installation,~~ listed Type ~~P~~ IM cable with metal braid armor~~, with~~ and an overall jacket~~,~~ where the cable is terminated with fittings listed for the location~~,~~ and installed in accordance with Part II of Article 337.

Informational Note No. 2: See UL 1309A~~-2020~~ , *Outline of Investigation for Cable for Use in Mobile Installations*, for information on construction, testing, and marking of Type ~~P~~ IM cable fittings.

Informational Note No. 3: See ANSI/UL 2225~~-2013~~ , *Cables and Cable-Fittings for Use in Hazardous (Classified) Locations*, for information on construction, testing, and marking of cable fittings.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 16:19:33 EST 2022

Committee Statement

Committee Statement: For Correlation with Section 250.118(5) and (6), and for compliance with Section 3.3.4 of the NEC Style Manual, the word “where” is changed to the word “if.”

Second Revision No. 7710-NFPA 70-2021 [Section No. 501.10(A)(2)]

Second Correlating Revision No. 51-NFPA 70-2022 [Section No. 501.10(B)]

(B) Class I, Division 2.

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(1) General.

In Class I, Division 2 locations, all wiring methods in accordance with 501.10(A) and the following wiring methods shall be permitted:

Informational Note No. 1: See Article 100 for the definition of *restricted industrial establishment [as applied to hazardous (classified) locations]*.

(1) Rigid metal conduit (~~Type~~ RMC) ~~and~~or intermediate metal conduit (~~Type~~ IMC) with listed threaded or threadless fittings, including RMC or IMC conduit systems with supplemental corrosion protection coatings.

(2) Enclosed gasketed busways and enclosed gasketed wireways.

(3) Type PLTC ~~and~~cable or Type PLTC-ER cable ~~in accordance with Parts II or III of Article 725~~ used for Class 2 and Class 3 circuits, including installation in cable tray systems. The cable shall be terminated with listed fittings. Type PLTC-ER cable shall include an equipment grounding conductor in addition to a drain wire that might be present.

(4) Type ITC ~~and~~cable or Type ITC-ER cable as permitted in ~~727.4~~335.4 and terminated with listed fittings. Type ITC-ER cable shall include an equipment grounding conductor in addition to a drain wire.

(5) Type MC, Type MV, Type TC, or Type TC-ER cable, including installation in cable tray systems. Type TC-ER cable shall include an equipment grounding conductor in addition to a drain wire that might be present. All cable types shall be terminated with listed fittings.

(6) Where metal conduit will not provide ~~sufficient~~the corrosion resistance needed for the installation environment, any of the following shall be permitted:

a. Listed reinforced thermosetting resin conduit (RTRC), factory elbows, and associated fittings, all marked with the suffix -XW

b. PVC-coated ~~rigid metal conduit (RMC)~~RMC, factory elbows, and associated fittings

c. PVC-coated ~~intermediate metal conduit (IMC)~~IMC, factory elbows, and associated fittings

d. In restricted industrial establishments ~~with restricted public access, where the conditions of maintenance and supervision ensure that only qualified persons service the installation~~, Schedule 80 PVC conduit, factory elbows, and associated fittings

(7) Optical fiber cable Type OFNP, Type OFCP, Type OFNR, Type OFCR, Type OFNG, Type OFCG, Type OFN, ~~and~~or Type OFC installed in cable trays or any other raceway in accordance with 501.10(B). Optical fiber cables shall be sealed in accordance with 501.15.

(8) Cablebus.

(9) In restricted industrial establishments ~~with restricted public access, where the conditions of maintenance and supervision ensure that only qualified persons service the installation~~, listed Type ~~P~~IM cable with or without metal braid armor, with an overall jacket, and terminated with fittings listed for the location when entering explosionproof, flameproof, or pressurized equipment. The cable shall be installed in accordance with Part II of Article 337.

Informational Note No. 2: See ANSI/UL 1309A~~-2020~~, *Outline of Investigation for Cable for Use in Mobile Installations*, for information on construction, testing, and marking of Type ~~P~~IM cable.

Informational Note No. 3: See ANSI/UL 2225~~-2013~~, *Cables and Cable-Fittings for Use in Hazardous (Classified) Locations*, for information on construction, testing, and marking of cable fittings.

(2) Flexible Connections.

~~Where flexibility is necessary~~ If flexibility is necessary to minimize the transmission of vibration from equipment during operation or to allow for movement after installation during maintenance , one or more of the following shall be permitted:

(1) Listed flexible metal fittings

(2) Flexible metal conduit with listed fittings and bonded in accordance with 501.30(B)

(3) Interlocked armor Type MC cable with listed fittings

(4) Liquidtight flexible metal conduit with listed fittings and bonded in accordance with 501.30(B)

(5) Liquidtight flexible nonmetallic conduit with listed fittings

(6) Flexible cord listed for extra-hard usage and terminated with listed fittings, with a conductor for use as an equipment grounding conductor

(7) For elevator use, an identified elevator cable of Type EO, Type ETP, or Type ETT, shown under the "use" column in Table 400.4 for "hazardous (classified) locations" and terminated with listed fittings

(8) In restricted industrial establishments, ~~with restricted public access, where the conditions of maintenance and supervision ensure that only qualified persons service the installations,~~ listed Type ~~P~~ IM cable with or without metal braid armor, with an overall jacket, terminated with listed fittings and installed in accordance with Part II of Article 337

(3) Nonincendive Field Wiring.

Nonincendive field wiring shall be permitted using any of the wiring methods permitted for unclassified locations. Nonincendive field wiring systems shall be installed in accordance with the control drawing(s). Simple apparatus, not shown on the control drawing, shall be permitted in a nonincendive field wiring circuit~~, provided~~ if the simple apparatus does not interconnect the nonincendive field wiring circuit to any other circuit.

Informational Note: See Article 100 for the definition of *simple apparatus*.

Separate nonincendive field wiring circuits shall be installed in accordance with one of the following:

(1) In separate cables

(2) In multiconductor cables where the conductors of each circuit are within a grounded metal shield

(3) In multiconductor cables or in raceways, where the conductors of each circuit have insulation with a minimum thickness of 0.25 mm (0.01 in.)

(4) Boxes and Fittings.

Boxes and fittings shall ~~not~~ be ~~required to be~~ explosionproof ~~except as~~ if required by 501.105(B)(2), 501.115(B)(1), ~~and~~ or 501.150(B)(1).

Informational Note No. 1: See ANSI/UL 2225~~-2013~~ , *Cables and Cable-Fittings for Use in Hazardous (Classified) Locations*, for information on construction, testing, and marking of cable for entry into enclosures required to be explosionproof.

Informational Note No. 2: See ANSI/UL 1203~~-2013~~ , *Explosion-Proof and Dust-Ignition-Proof Electrical Equipment for Use in Hazardous (Classified) Locations*, for information on construction, testing, and marking of explosionproof conduit fittings for entry into enclosures required to be explosionproof.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 16:25:09 EST 2022

Committee Statement

Committee Statement: For Correlation with Section 250.118(5) and (6), and for compliance with Section 3.3.4 of the NEC Style Manual, the word “where” is changed to the word “if” in 501.10(B)(2). Also for Correlation and for compliance with Section 3.3.4 of the NEC Style Manual, the word “where” is changed to the word “if” in 501.10(B)(4).

Second Revision No. 7720-NFPA 70-2021 [Section No. 501.10(B)]

Second Correlating Revision No. 52-NFPA 70-2022 [Section No. 501.15(D)(2)]

(2) Cables Capable of Transmitting Gases or Vapors.

Cables with a gas/vaportight continuous sheath capable of transmitting gases or vapors through the cable core, installed in conduit, shall be sealed in the Class I, Division 1 location after the jacket and any other coverings have been removed so that the sealing compound can surround each individual insulated conductor or optical fiber tube and the outer jacket.

Exception: Multiconductor cables with a gas/vaportight continuous sheath capable of transmitting gases or vapors through the cable core shall be permitted to be considered ~~as~~ a single conductor ~~by sealing~~ if the cable is sealed in the conduit within 450 mm (18 in.) of the enclosure and the cable end is sealed within the enclosure by an approved means to minimize the entrance of gases or vapors and prevent the propagation of flame into the cable core, or by other approved methods. ~~Removing~~ If both requirements are met, the shielding material ~~or separate~~ shall not be required to be removed and the twisted pairs of shielded cables and twisted pair cables shall not be required to be separated .

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 16:27:42 EST 2022

Committee Statement

Committee Statement: The Correlating Committee directs that the word “where” be changed to the word “if in 501.15(D)(2) Exception.

For Correlation and for compliance with Section 3.3.4 of the NEC Style Manual.

Second Revision No. 7734-NFPA 70-2021 [Section No. 501.15(D)(2)]

Second Correlating Revision No. 53-NFPA 70-2022 [Section No. 502.10(B)]

(B) Class II, Division 2.

Wiring methods installed in Class II, Division 2 locations shall be in accordance with 502.10(B)(1)through (B)(4).

(1) General.

In Class II, Division 2 locations, the following wiring methods shall be permitted:

(1) All wiring methods permitted in 502.10(A).

(2) Rigid metal conduit (~~Type~~ RMC)~~,~~ or intermediate metal conduit (~~Type~~ IMC)~~,~~ with listed threaded or threadless fittings, including conduit systems with supplemental corrosion protection coatings.

(3) ~~Electrical~~ Dusttight wireways or electrical metallic tubing (~~Type~~ EMT) with listed compression-type connectors ~~and/~~ or listed compression-type couplings. ~~or dusttight wireways.~~

(4) Type MC, Type MV, Type TC, or Type TC-ER cable, including installation in cable tray systems. Type TC-ER cable shall include an equipment grounding conductor in addition to a drain wire that might be present. The cable shall be terminated with listed fittings.

(5) Type PLTC ~~and~~ cable or Type PLTC-ER cable ~~in accordance with Parts II or III of Article 725~~ used in Class 2 or Class 3 circuits , including installation in cable tray systems. The cable shall be terminated with listed fittings. Type PLTC-ER cable shall include an equipment grounding conductor in addition to a drain wire that might be present.

(6) Type ITC ~~and~~ cable or Type ITC-ER cable~~,~~ as permitted in ~~727.4,~~ 335.4 and terminated with listed fittings. Type ITC-ER cable shall include an equipment grounding conductor in addition to a drain wire.

(7) In restricted industrial establishments ~~with restricted public access, where the conditions of maintenance and supervision ensure that only qualified persons service the installation and~~ where wiring methods in 502.10(B)(1)(1)(2) will not provide ~~sufficient~~ the corrosion resistance required for the installation environment , either of the following:

a. Listed reinforced thermosetting resin conduit (RTRC), factory elbows, and associated fittings, all marked with suffix -XW

b. Schedule 80 PVC conduit, factory elbows, and associated fittings

(8) Optical fiber cable Type OFNP, Type OFCP, Type OFNR, Type OFCR, Type OFNG, Type OFCG, Type OFN, ~~and~~ or Type OFC, installed in cable trays or any other raceway in accordance with 502.10(B). Optical fiber cables shall be sealed in accordance with 502.15.

(9) Cablebus.

(10) In restricted industrial establishments, ~~with restricted public access, where the conditions of maintenance and supervision ensure that only qualified persons service the installation,~~ listed Type ~~P~~ IM cable with or without metal braid armor, with an overall jacket, that is terminated with listed fittings~~,~~ and installed in accordance with 337.10.

Informational Note: See UL 1309A, *Outline of Investigation for Cable for Use in Mobile Installations*, for information on construction, testing, and marking of Type ~~P~~ IM cable.

(2) Flexible Connections.

~~Where provision must be made for~~ If flexibility is necessary , 502.10(A)(2) shall apply.

(3) Nonincendive Field Wiring.

Nonincendive field wiring shall be permitted using any of the wiring methods permitted for unclassified locations. Nonincendive field wiring systems shall be installed in accordance with the control drawing(s). Simple apparatus, not shown on the control drawing, shall be permitted in a nonincendive field wiring circuit if the simple apparatus does not interconnect the nonincendive field wiring circuit to any other circuit.

Informational Note: See Article 100 for the definition of *simple apparatus*.

Separate nonincendive field wiring circuits shall be installed in accordance with one of the following:

(1) In separate cables

(2) In multiconductor cables where the conductors of each circuit are within a grounded metal shield

(3) In multiconductor cables or in raceways where the conductors of each circuit have insulation with a minimum thickness of 0.25 mm (0.01 in.)

(4) Boxes and Fittings.

All boxes and fittings shall be dusttight.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 16:31:41 EST 2022

Committee Statement

Committee Statement: For Correlation and for compliance with Section 3.3.4 of the NEC Style Manual, the word “where” is changed to the word “if” in 502.10(B)(2).

Second Revision No. 7800-NFPA 70-2021 [Section No. 502.10(B)]

Second Correlating Revision No. 54-NFPA 70-2022 [Section No. 505.1]

505.1 Scope.

(A) Covered.

This article covers the requirements for the zone classification system as an alternative to the division classification system covered in 500.1 for electrical and electronic equipment and wiring for all voltages ~~in Zone 0, Zone 1, and Zone 2 hazardous (classified) locations~~ where fire or explosion hazards ~~may~~ might exist due to flammable gases, vapors, or liquids~~.~~ for the following:

(1) Zone 0 hazardous (classified) locations

(2) Zone 1 hazardous (classified) locations

(3) Zone 2 hazardous (classified) locations

~~This article does not cover area classification and general requirements for flammable gases, flammable liquid–produced vapors, combustible liquid–produced vapors, using the Division system as described in 501.1. This *Code* does not address the unique risk and explosion hazards associated with explosives, pyrotechnics, and blasting agents.~~

Informational Note No. 1: The term “Class I” was originally included as a prefix to Zone 0, Zone 1, and Zone 2 locations and references as an identifier for flammable gases, vapors, or liquids to differentiate from Class II and Class III locations. Zone 0, Zone 1, and Zone 2 only apply to flammable gases, vapors, or liquids, so the “Class I” prefix is redundant and has been deleted. However, the marking of “Class I” is left as an optional marking within this Article.

Informational Note No. 2: See NFPA 497-2021, *Recommended Practice for the Classification of Flammable Liquids, Gases, or Vapors and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas*, for extracted text that is followed by a reference in brackets. Only editorial changes were made to the extracted text to make it consistent with this *Code*.

Informational Note No. 3: See Article 100 for the definition of *restricted industrial establishment [as applied to hazardous (classified) locations]* .

(B) Not Covered.

This article does not cover electrical and electronic equipment and wiring in the following:

(1) Class I, Class II, or Class III, Division 1 or Division 2 hazardous (classified) locations

(2) Zone 20, Zone 21, or Zone 22 hazardous (classified) locations

(3) Locations subject to the unique risk and explosion hazards associated with explosives, pyrotechnics, and blasting agents

(4) Locations where pyrophoric materials are the only materials used or handled

(5) Features of equipment that involve nonelectrical potential sources of ignition (e.g., couplings, pumps, gearboxes, brakes, hydraulic and pneumatic motors, fans, engines, compressors)

Informational Note No. 1: Common nonelectrical potential sources of ignition include hot surfaces and mechanically generated sparks.

Informational Note No. 2: See ANSI/UL 80079-36, *Explosive Atmospheres — Part 36: Non-Electrical Equipment for Explosive Atmospheres — Basic Method and Requirements*, and ANSI/UL 80079-37, *Explosive Atmospheres — Part 37: Non-Electrical Equipment for Explosive Atmospheres — Non-Electrical Type of Protection Constructional Safety "c" Control of Ignition Source "b", Liquid Immersion "k"* , for additional information.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 16:35:31 EST 2022

Committee Statement

Committee Statement: The subdivisions in 90.2 do not use the word "Installations." The word "installations" is not necessary and may not be reflective of all content in each subdivision, which may be other than an installation. The Correlating Committee advises that article scope statements are the responsibility of the Correlating Committee and the Correlating Committee accepts the panel action as revised by SCR 54.

Second Revision No. 7764-NFPA 70-2021 [Section No. 505.1]

Second Correlating Revision No. 55-NFPA 70-2022 [Section No. 505.15(B)]

(B) Zone 1.

Global SCR-46

Global SCR-134

(1) General.

In Zone 1 locations, the following wiring methods shall be permitted:

Informational Note No. 1: See Article 100 for the definition of *restricted industrial establishment [as applied to hazardous (classified) locations]*.

(1) All wiring methods permitted by 505.15(A).

(2) In restricted industrial establishments ~~with restricted public access,~~ where ~~the conditions of maintenance and supervision ensure that only qualified persons service the installation, and where~~ the cable is not subject to physical damage, Type MC-HL cable listed for use in Zone 1 or Class I, Division 1 locations, with a gas/vaportight continuous corrugated metallic sheath, an overall jacket of suitable polymeric material, and a separate equipment grounding conductor(s) in accordance with 250.122~~, and terminated with fittings listed for the application~~. Type MC-HL cable shall be terminated with fittings listed for the application and installed in accordance with Part II of Article 330.

(3) In restricted industrial establishments ~~with restricted public access, where the conditions of maintenance and supervision ensure that only qualified persons service the installation, and~~ where the cable is not subject to physical damage, Type ITC-HL cable listed for use in Zone 1 or Class I, Division 1 locations, with a gas/vaportight continuous corrugated metallic sheath and an overall jacket of suitable polymeric material~~, and terminated with fittings listed for the application~~. Type ITC-HL cable shall be terminated with fittings listed for the application and installed in accordance with ~~727.4~~335.4

(4) Type MI cable terminated with fittings listed for Zone 1 or Class I, Division 1 locations. Type MI cable shall be installed and supported in a manner to avoid tensile stress at the termination fittings.

(5) Threaded rigid metal conduit (~~Type~~ RMC) or threaded ~~steel~~ intermediate metal conduit (~~Type~~ IMC), including RMC or IMC conduit systems with supplemental corrosion protection coatings.

(6) Where encased in a concrete envelope a minimum of 50 mm (2 in.) thick and provided with not less than 600 mm (24 in.) of cover measured from the top of the conduit to grade, ~~Type~~ PVC or RTRC conduit. ~~Threaded rigid metal conduit or threaded steel intermediate metal~~RMC or IMC conduit shall be used for the last 600 mm (24 in.) of the underground run to emergence or to the point of connection to the aboveground raceway. An equipment grounding conductor shall be included to provide for electrical continuity of the raceway system and for grounding of non–current-carrying metal parts.

(7) Intrinsic safety type of protection “ib” using the wiring methods in accordance with 504.20.

(8) Optical fiber cable Type OFNP, Type OFCP, Type OFNR, Type OFCR, Type OFNG, Type OFCG, Type OFN, ~~and~~or Type OFC installed in raceways in accordance with 505.15(B). Optical fiber cable shall be sealed in accordance with 505.16.

(9) In restricted industrial establishments ~~with restricted public access, where the conditions of maintenance and supervision ensure that only qualified persons service the installation,~~ for applications limited to 600 volts nominal or less~~, and~~ where the cable is not subject to physical damage ~~and is~~, Type TC-ER-HL shall be terminated with fittings listed for the location~~, Type TC-ER-HL cable listed for use in Class I, Division 1 or Zone 1 locations~~ and installed in accordance with 336.10.

Informational Note No. 2: See ANSI/UL 2225~~-2013~~, *Cables and Cable-Fittings for Use in Hazardous (Classified) Locations*, for information on construction, testing, and marking of cables and cable fittings.

(10) In restricted industrial establishments ~~with restricted public access, where the conditions of maintenance and supervision ensure that only qualified persons service the installation~~, listed Type ~~P~~IM cable with metal braid armor and an overall jacket~~,~~. Type IM cable shall be terminated with fittings listed for the location~~,~~ and installed in accordance with Part II of Article 337.

Informational Note No. 3: See UL 1309A~~-2020~~, *Outline of Investigation for Cable for use in Mobile Installations*, for information on construction, testing, and marking of Type ~~P~~IM cable.

Informational Note No. 4: See ANSI/UL 2225~~-2013~~, *Cables and Cable-Fittings for Use in Hazardous (Classified) Locations*, for information on construction, testing, and marking of cable fittings.

(2) Flexible Connections.

~~Where flexible connections are necessary, as at motor terminals~~ If flexibility is necessary to minimize the transmission of vibration from equipment during operation or to allow for movement after installation during maintenance , one of the following shall be permitted:

(1) Flexible fittings listed for the location.

(2) Flexible cord in accordance with 505.17(A), terminated with cord connectors listed for the location.

(3) In restricted industrial establishments ~~with restricted public access, where the conditions of maintenance and supervision ensure that only qualified persons service the installation,~~ for applications limited to 600 volts nominal or less, ~~and~~ where the cable is not subject to physical damage and is terminated with fittings listed for the location, Type TC-ER-HL cable. Type TC-ER-HL cable shall be listed for use in Class I, Division 1 or Zone 1 locations and shall be installed in accordance with 336.10.

Informational Note No. 1: See ANSI/UL 2225~~-2013~~ , *Cables and Cable-Fittings for Use in Hazardous (Classified) Locations*, for information on construction, testing, and marking of cables and cable fittings.

(4) In restricted industrial establishments ~~with restricted public access, where the conditions of maintenance and supervision ensure that only qualified persons service the installation,~~ listed Type ~~P~~ IM cable with metal braid armor~~, with~~ and an overall jacket~~,~~ . Type IM cable shall be terminated with fittings listed for the location~~,~~ and installed in accordance with Part II of Article 337.

Informational Note No. 2: See UL 1309A~~-2020~~ , *Outline of Investigation for Cable for Use in Mobile Installations*, for information on construction, testing, and marking of Type ~~P~~ IM cable.

Informational Note No. 3: See ANSI/UL 2225~~-2013~~ , *Cables and Cable-Fittings for Use in Hazardous (Classified) Locations*, for information on construction, testing, and marking of cable fittings.

Submitter Information Verification

Committee: NEC-AAC

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Committee Statement

Committee Statement: For Correlation and for compliance with Section 3.3.4 of the NEC Style Manual, the word “where” is changed to the word “if” in 502.10(B)(2).

Second Revision No. 7772-NFPA 70-2021 [Section No. 505.15(B)]

Second Correlating Revision No. 56-NFPA 70-2022 [Section No. 506.1]

506.1 Scope.

~~This article does not cover area classification and general requirements for dusts for the Division system as described in 500.1. This *Code* does not address the unique risk and explosion hazards associated with explosives, pyrotechnics, and blasting agents.~~

(A) Covered.

This article covers the requirements for the zone classification system for electrical and electronic equipment and wiring for all voltages ~~in Zone 20, Zone 21, and Zone 22 hazardous (classified) locations~~ where fire and explosion hazards ~~may~~ might exist due to combustible dusts, combustible fibers/flyings, or ignitible fibers/flyings for the following:

(1) Zone 20 hazardous (classified) locations

(2) Zone 21 hazardous (classified) locations

(3) Zone 22 hazardous (classified) locations

Informational Note No. 1: See 505.20 or 505.22 for Zone 0~~,~~ , Zone 1~~,~~ , or Zone 2 hazardous (classified) locations where fire or explosion hazards ~~may~~ might exist due to flammable gases ~~or~~ , flammable vapors, or flammable liquids.

Informational Note No. 2: Zone 20, Zone 21, and Zone 22 area classifications are based on the modified IEC area classification system as defined in ANSI/ISA 60079-10-2 (12.10.05)~~-2013~~ , *Explosive Atmospheres — Part 10-2: Classification of Areas — Combustible Dust Atmospheres*.

Informational Note No. 3: See NFPA 499~~-2021~~ , *Recommended Practice for the Classification of Combustible Dusts and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas*, ~~provides additional~~ for information ~~for~~ regarding classification of hazardous (classified) locations using Zone methodology.

(B) Not Covered.

This article does not cover electrical and electronic equipment and wiring of all voltages in the following:

(1) Class I, Class II, or Class III, Division 1 or Division 2 hazardous (classified) locations.

(2) Zone 0, Zone 1, or Zone 2 hazardous (classified) locations.

(3) Locations subject to the unique risk and explosion hazards associated with explosives, pyrotechnics, or blasting agents.

(4) Locations where pyrophoric materials are the only materials used or handled.

(5) Features of equipment that involve nonelectrical potential sources of ignition (e.g., couplings, pumps, gearboxes, brakes, hydraulic and pneumatic motors, fan, engine, compressor).

Informational Note No. 1: Common nonelectrical potential sources of ignition include hot surfaces and mechanically generated sparks.

Informational Note No. 2: See ANSI/UL 80079-36, *Explosive Atmospheres — Part 36: Non-Electrical Equipment for Explosive Atmospheres — Basic Method and Requirements*, and ANSI/UL 80079-37, *Explosive Atmospheres — Part 37: Non-Electrical Equipment for Explosive Atmospheres — Non-Electrical Type of Protection Constructional Safety "c" Control of Ignition Source "b", Liquid Immersion "k"*, for additional information.

Submitter Information Verification

Committee: NEC-AAC

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Committee Statement

Committee Statement: The subdivisions in 90.2 do not use the word “Installations.” The word “installations” is not necessary and may not be reflective of all content in each subdivision, which may be other than an installation. The Correlating Committee advises that article scope statements are the responsibility of the Correlating Committee and the Correlating Committee accepts the panel action as revised by SCR 56.

Second Revision No. 7840-NFPA 70-2021 [Section No. 506.1]

Second Correlating Revision No. 57-NFPA 70-2022 [Section No. 506.9]

506.9 Equipment Requirements.

(A) Suitability.

Suitability of identified equipment shall be determined by one of the following:

(1) Equipment listing or labeling

(2) Evidence of equipment evaluation from a qualified testing laboratory or inspection agency concerned with product evaluation

(3) Evidence acceptable to the authority having jurisdiction such as a manufacturer's self-evaluation or an owner's engineering judgment

Informational Note: Additional documentation for equipment ~~may~~ might include certificates demonstrating compliance with applicable equipment standards, indicating special conditions of use, and other pertinent information.

(B) Listing.

Equipment that is listed for Zone 20 shall be permitted in a Zone 21 or Zone 22 location of the same combustible dust, combustible fiber/flyings, or ignitible fiber/flyings . Equipment that is listed for Zone 21 ~~may~~ shall be permitted to be used in a Zone 22 location of the same combustible dust, combustible fiber/flyings, or ignitible fiber/flyings .

(C) Marking.

(1) Division Equipment.

Equipment identified for Class II, Division 1, ~~or~~ Class II, Division 2, Class III, Division 1, or Class III, Division 2 shall, in addition to being marked in accordance with 500.8(C), be permitted to be marked with all of the following:

(1) Zone 20, 21, or 22 (as applicable)

(2) Material group in accordance with 506.6

(3) Maximum surface temperature in accordance with 506.9(D), marked as a temperature value in degrees C, preceded by “T” and followed by the symbol “°C”

(2) Zone Equipment.

Equipment meeting one or more of the protection techniques described in 506.8 shall be marked with the following in the order shown:

(1) Zone in accordance with Chapter 9, Table 13

(2) Symbol “AEx”

(3) Protection technique(s) in accordance with Chapter 9, Table 13

(4) Material group in accordance with 506.6

(5) Maximum surface temperature in accordance with 506.9(D), marked as a temperature value in degrees Celsius, preceded by “T” and followed by the symbol “°C”

(6) Ambient temperature marking in accordance with 506.9(D)

(7) Equipment protection level (EPL)

Informational Note: EPLs are designated as G for gas, or D for dust, and are then followed by a letter (a, b, or c) to give the user a better understanding as to whether the equipment provides (a) a “very high,” (b) a “high,” or (c) an “enhanced” level of protection against ignition of an explosive atmosphere. For example, a Zone 21 AEx pb IIIB T165°C Db motor is marked with an EPL of “Db”.

Exception: Associated apparatus NOT suitable for installation in a hazardous (classified) location shall be required to be marked only with 506.9(C)(2)(2) and (C)(2)(3), and where applicable (C)(2)(4), but BOTH the symbol AEx in 506.9(C)(2)(2) and the symbol for the type of protection in 506.9(C)(2)(3) shall be enclosed within the same square brackets; for example, [AEx ia] IIIC.

(D) Temperature Classifications.

Equipment shall be marked to show the maximum surface temperature referenced to a 40°C ambient, or at the higher marked ambient temperature if the equipment is rated and marked for an ambient temperature of greater than 40°C. For equipment installed in a Zone 20 or Zone 21 location, the operating temperature shall be based on operation of the equipment when blanketed with the maximum amount of dust (or with dust-simulating fibers/flyings) that can accumulate on the equipment. Electrical equipment designed for use in the ambient temperature range between −20°C and +40°C shall require no additional ambient temperature marking. Electrical equipment that is designed for use in a range of ambient temperatures other than −20°C and +40°C is considered to be special, and the ambient temperature range shall then be marked on the equipment, including either the symbol “Ta” or “Tamb” together with the special range of ambient temperatures.

Informational Note: As an example, such a marking might be “–30°C ≤ Ta ≤ +40°C.”

Exception No. 1: Equipment of the non–heat-producing type, such as conduit fittings, shall not be required to have a marked operating temperature.

Exception No. 2: Equipment identified for Class II, Division 1 or Class II, Division 2 locations as permitted by 506.20(B) and (C) shall be permitted to be marked in accordance with 500.8(C) and Table 500.8(C)(4).

(E) Threading.

The supply connection entry thread form shall be NPT or metric. Conduit and fittings shall be made wrenchtight to prevent sparking when the fault current flows through the conduit system and to ensure the integrity of the conduit system. Equipment provided with threaded entries for field wiring connections shall be installed in accordance with 506.9(E)(1) or (E)(2) and with (E)(3).

Global SR-7522

(1) Equipment Provided with Threaded Entries for NPT-Threaded Conduit or Fittings.

For equipment provided with threaded entries for NPT-threaded conduit or fittings, listed conduit fittings or listed cable fittings shall be used. All NPT-threaded conduit and fittings shall be threaded with a National (American) Standard Pipe Taper (NPT) thread.

Informational Note: See ASME B1.20.1-~~2013~~, *Pipe Threads, General Purpose (Inch)*, for thread specifications for NPT threads.

(2) Equipment Provided with Threaded Entries for Metric-Threaded Fittings.

For equipment with metric-threaded entries, listed conduit fittings or listed cable fittings shall be used. Such entries shall be identified as being metric, or listed adapters to permit connection to conduit or NPT-threaded fittings shall be provided with the equipment and shall be used for connection to conduit or NPT-threaded fittings. Metric-threaded fittings installed into equipment entries shall be made up with at least five threads fully engaged.

(3) Unused Openings.

All unused openings shall be closed with blanking elements or close-up plugs that are listed for the location and will maintain the type of protection. Thread engagement shall comply with the requirements of 506.9(E)(1) or (E)(2).

(F) Optical Fiber Cables.

An optical fiber cable, with or without current-carrying conductors (~~composite~~ hybrid optical fiber cable), shall be installed to address the associated fire hazard and sealed to address the associated explosion hazard in accordance with 506.15 and 506.16.

(G) Equipment Involving Optical Radiation.

For equipment involving sources of optical radiation (such as laser or LED sources) in the wavelength range from 380 nm to 10 µm, the risk of ignition from optical radiation shall be considered for all electrical parts and circuits that ~~may~~ might be exposed to the radiation, both inside and outside the optical equipment. This includes optical equipment, which itself is located outside the explosive atmosphere~~,~~ but its emitted optical radiation enters such atmospheres.

Informational Note: See ANSI/UL 60079-28-~~2017~~ , *Explosive Atmospheres — Part 28: Protection of Equipment and Transmission Systems Using Optical Radiation*, for information on types of protection that can be applied to minimize the risk of ignition in explosive atmospheres from optical radiation.

Exception: All luminaires (fixed, portable, or transportable) and hand lights intended to be supplied by mains (with or without galvanic isolation) or powered by batteries, with any continuous divergent light source, including LEDs, shall be excluded from this requirement.

Submitter Information Verification

Committee: NEC-AAC

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Committee Statement

Committee Statement: For correlation and consistency with this term as it appears in Article 503, 506 and elsewhere, the term fiber/flying should be plural in accordance with Section 3.3.3 of the NEC Style Manual. The word “can” is replaced with the phrase “shall be permitted to” to correlate with the first sentence of 506.9(B).

Second Revision No. 7844-NFPA 70-2021 [Section No. 506.9]

Second Correlating Revision No. 58-NFPA 70-2022 [Section No. 506.15]

506.15 Wiring Methods.

Wiring methods shall maintain the integrity of the protection techniques and shall comply with 506.15(A), (B), or (C).

Informational Note: See Article 100 for the definition of *restricted industrial establishment [as applied to hazardous (classified) locations]* .

Global SCR-134

(A) Zone 20.

In Zone 20 locations, the following wiring methods shall be permitted:

(1) Threaded rigid metal conduit (~~Type~~ RMC) or threaded ~~steel~~ intermediate metal conduit (~~Type~~ IMC).

(2) Type MI cable terminated with fittings listed for the location. Type MI cable shall be installed and supported in a manner to avoid tensile stress at the termination fittings.

Exception No. 1: Type MI cable and fittings listed for Class II, Division 1 locations shall be permitted to be used.

Exception No. 2: Equipment identified as intrinsically safe "ia" shall be permitted to be connected using the wiring methods identified in 504.20.

(3) In restricted industrial establishments ~~with limited public access, where the conditions of maintenance and supervision ensure that only qualified persons service the installation~~, Type MC-HL cable listed for use in Zone 20 locations, with a continuous corrugated metallic sheath, an overall jacket of suitable polymeric material, and a separate equipment grounding conductor(s) in accordance with 250.122, and terminated with fittings listed for the application~~, shall be permitted~~. Type MC-HL cable shall be installed in accordance with Part II of Article 330.

Exception: Type MC-HL cable and fittings listed for Class II, Division 1 locations shall be permitted to be used.

(4) In restricted industrial establishments ~~with restricted public access, where the conditions of maintenance and supervision ensure that only qualified persons service the installation~~, and where the cable is not subject to physical damage, Type ITC-HL cable listed for use in Zone 1 or Class I, Division 1 locations, with a gas/vaportight continuous corrugated metallic sheath and an overall jacket of suitable polymeric material, and terminated with fittings listed for the application. Type ITC-HL cable shall be installed in accordance with ~~727.4~~335.4.

(5) Fittings and boxes shall be identified for use in Zone 20 locations.

Exception: Boxes and fittings listed for Class II, Division 1 locations shall be permitted to be used.

(6) ~~Where necessary to employ~~If flexible connections are necessary, liquidtight flexible metal conduit (~~Type~~ LFMC) with listed fittings, liquidtight flexible nonmetallic conduit (~~Type~~ LFNC) with listed fittings, or flexible cord listed for extra-hard usage and provided with listed fittings ~~shall be used~~. Where flexible cords are used, they shall also comply with 506.17 and ~~shall~~ be terminated with a listed cord connector that maintains the type of protection of the terminal compartment. ~~Where~~If flexible connections are subject to oil or other corrosive conditions, the insulation of the conductors shall be of a type listed for the condition or ~~shall~~ be protected by means of a suitable sheath.

Exception No. 1: Liquidtight flexible conduit (~~Type~~ LFMC or LFNC), flexible conduit fittings, and cord fittings listed for Class II, Division 1 locations shall be permitted.

Exception No. 2: For elevator use, an identified elevator cable of Type EO, Type ETP, or Type ETT, shown under the "use" column in Table 400.4 for "hazardous (classified) locations," and terminated with listed connectors that maintain the type of protection of the terminal compartment shall be permitted.

Informational Note No. 1: See 506.30 for grounding requirements where flexible conduit is used.

Informational Note No. 2: See ANSI/UL 2225~~-2013~~, *Cables and Cable-Fittings for Use in Hazardous (Classified) Locations*, for information on construction, testing, and marking of cables, cable fittings, and cord connectors.

(7) Optical fiber cable Type~~s~~ OFNP, Type OFCP, Type OFNR, Type OFCR, Type OFNG, Type OFCG, Type OFN, ~~and~~or Type OFC ~~shall be permitted to be~~ installed in raceways in accordance with 506.15(A). Optical fiber cables shall be sealed in accordance with 506.16.

(B) Zone 21.

In Zone 21 locations, the following wiring methods shall be permitted:

(1) All wiring methods permitted in 506.15(A)

(2) Fittings and boxes that are dusttight, that are provided with threaded bosses for connection to conduit, and in which taps, joints, or terminal connections are not made~~,~~ and are not used in locations where metal dust is present~~, may be used~~

Informational Note: See ANSI/UL 2225~~-2013~~ , *Cables and Cable-Fittings for Use in Hazardous (Classified) Locations*, for information on construction, testing, and marking of cables, cable fittings, and cord connectors.

Exception: Equipment identified as intrinsically safe "ib" shall be permitted to be connected using the wiring methods identified in 504.20.

(C) Zone 22.

In Zone 22 locations, the following wiring methods shall be permitted:

(1) All wiring methods permitted in 506.15(B).

(2) Rigid metal conduit (~~Type~~ RMC) or intermediate metal conduit (~~Type~~ IMC) with listed threaded or threadless fittings.

(3) Electrical metallic tubing (~~Type~~ EMT) or dusttight wireways.

(4) Type MC or Type MI cable with listed termination fittings.

(5) Type PLTC cable or Type PLTC-ER cable ~~in accordance with Part II or III of Article 725~~ used in Class 2 or Class 3 circuits , including installation in cable tray systems. The cable shall be terminated with listed fittings. Type PLTC-ER cable shall include an equipment grounding conductor in addition to a drain wire that might be present.

(6) Type ITC cable or Type ITC-ER cable as permitted in ~~727.4~~ 335.4 and terminated with listed fittings. Type ITC-ER cable shall include an equipment grounding conductor in addition to a drain wire.

(7) Type MV, Type TC, or Type TC-ER cable, including installation in cable tray systems. Type TC-ER cable shall include an equipment grounding conductor in addition to a drain wire that might be present. The cable shall be terminated with listed fittings.

(8) Intrinsic safety type of protection "ic" ~~shall be permitted~~ using any of the wiring methods permitted for unclassified locations. Intrinsic safety type of protection "ic" systems shall be installed in accordance with the control drawing(s). Simple apparatus, not shown on the control drawing, shall be permitted in a circuit of intrinsic safety type of protection "ic", provided that the simple apparatus does not interconnect the intrinsic safety type of protection "ic" circuit to any other circuit. Separation of circuits of intrinsic safety type of protection "ic" shall be in accordance with one of the following:

a. Be in separate cables

b. Be in multiconductor cables where the conductors of each circuit are within a grounded metal shield

c. Be in multiconductor cables where the conductors have insulation with a minimum thickness of 0.25 mm (0.01 in.)

Informational Note: See Article 100 for the definition of *simple apparatus*.

(9) Boxes and fittings shall be dusttight.

(10) Optical fiber cable Type~~s~~ OFNP, Type OFCP, Type OFNR, Type OFCR, Type OFNG, Type OFCG, Type OFN, ~~and~~ or Type OFC ~~shall be permitted to be~~ installed in cable trays or any raceway in accordance with 506.15(C). Optical fiber cables shall be sealed in accordance with 506.16.

(11) Cablebus.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 16:46:11 EST 2022

Committee Statement

Committee Statement: For Correlation and for compliance with Section 3.3.4 of the NEC Style Manual, the word “where” is changed to the word “if” in 506.15(A)(6).

Second Revision No. 7845-NFPA 70-2021 [Section No. 506.15]

Second Correlating Revision No. 59-NFPA 70-2022 [Section No. 506.20]

506.20 Equipment Installation.

(A) Zone 20.

In Zone 20 locations, only equipment listed and marked as suitable for the location shall be permitted.

Exception No. 1: Equipment listed for use in Class II, Division 1 locations with a suitable temperature class shall be permitted.

Exception No. 2: For locations involving Group IIIA materials, equipment listed for use in Class III, Division 1 locations with a suitable temperature in accordance with 500.8(D) (3) shall be permitted.

(B) Zone 21.

In Zone 21 locations, only equipment listed and marked as suitable for the location shall be permitted.

Exception No. 1: Apparatus listed for use in Class II, Division 1 locations with a suitable temperature class shall be permitted.

Exception No. 2: Pressurized equipment identified for Class II, Division 1 shall be permitted.

Exception No. 3: For locations involving Group IIIA materials, equipment listed for use in Class III, Division 1 locations with a suitable temperature in accordance with 500.8(D) (3) shall be permitted.

(C) Zone 22.

In Zone 22 locations, only equipment listed and marked as suitable for the location shall be permitted.

Exception No. 1: Apparatus listed for use in Class II, Division 1 or Class II, Division 2 locations with a suitable temperature class shall be permitted.

Exception No. 2: Pressurized equipment identified for Class II, Division 1 or Division 2 shall be permitted.

Exception No. 3: For Group IIIA materials, equipment listed for use in Class III, Division 1 or Class III, Division 2 locations with a suitable temperature in accordance with 500.8(D) (3) shall be permitted.

(D) Material Group.

Equipment marked Group IIIC shall be permitted for applications requiring Group IIIA or Group IIIB equipment. Similarly, equipment marked Group IIIB shall be permitted for applications requiring Group IIIA equipment.

(E) Manufacturer's Instructions.

Electrical equipment installed in hazardous (classified) locations shall be installed in accordance with the manufacturer's instructions ~~(if any)~~ , if provided ~~by the manufacturer~~ .

(F) Temperature.

The temperature marking specified in 506.9(C)(2)(5) shall comply with 506.20(F) (1) or (F)(2):

(1) ~~For combustible dusts~~ Combustible dusts or combustible fibers/flyings shall be ~~,~~ less than the lower of either the layer or cloud ignition temperature of the specific combustible dust or combustible fiber/flying . For ~~organic~~ nonmetal dusts or nonmetal combustible fibers/flyings that ~~may~~ might dehydrate or carbonize, the temperature marking shall not exceed the lower of either the ignition temperature or 165°C (329°F).

(2) For ignitible fibers/flyings, less than 165°C (329°F) for equipment that is not subject to overloading, or 120°C (248°F) for equipment (such as motors or power transformers) that may be overloaded.

Informational Note: See NFPA 499~~-2021~~ , *Recommended Practice for the Classification of Combustible Dusts and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas*, for minimum ignition temperatures of specific dusts.

Submitter Information Verification

Committee: NEC-AAC

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Committee Statement

Committee Statement: For Correlation and for compliance with Section 3.3.4 of the NEC Style Manual, the word “where” is changed to the word “if” in 506.20(E).

Second Revision No. 7867-NFPA 70-2021 [Section No. 506.20]

Second Correlating Revision No. 35-NFPA 70-2022 [Section No. 517.22]

517.22 Demand Factors.

Demand factors for receptacle loads supplied by ~~general-use receptacles and individual~~ branch circuits not exceeding 150 volts to ground and installed in Category 1, Category 2, Category 3, and Category 4 patient care spaces shall be ~~permitted to be applied~~ in accordance with ~~517.22(A) and (B)~~ 220.110 .

Informational Note: See Article 100 for the definitions of patient care space categories.

~~**(A)** General-Use Receptacles.~~

~~In addition to demand factors allowed by other sections of this *Code* , the demand factor for general-use receptacles shall be permitted to be calculated in accordance with Table 517.22(A).~~

~~Table 517.22(A) Demand Factors for General-Use Receptacles in Health Care Facilities~~

~~Portion of Receptacle Load to Which Demand Factor Applies~~	~~Demand Factor (%)~~
~~First 5.0 kVA or less~~	~~100~~
~~Second 5.0 kVA to 10kVA~~	~~50~~
~~Remainder over 10 kVA~~	~~25~~

~~Informational Note: See 220.14(I) for the calculation of general-use receptacle loads.~~

~~**(B)** Receptacles for Designated Equipment.~~

~~Individual branch circuits supplying receptacles for equipment shall be permitted to be calculated in accordance with Table 517.22(B).~~

~~Table 517.22(B) Demand Factors for Equipment Supplied by Individual Branch Circuits in Health Care Facilities~~

~~Equipment Supplied by Individual Branch Circuits~~	~~Demand Factor (%)~~
~~Largest five connected loads~~	~~100~~
~~Six or more connected loads~~	~~50~~

~~Informational Note: See 220.60 for noncoincident load calculations.~~

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 15:00:29 EST 2022

Committee Statement

Committee Statement: The Correlating Committee directs that the section be rewritten to change the reference from 220.48 to 220.110 since the section is relocated.

Second Revision No. 8598-NFPA 70-2021 [Section No. 517.22]

Second Correlating Revision No. 60-NFPA 70-2022 [Section No. 520.68(D)]

(D) Special-Purpose Multi~~Circuit~~ circuit Cable Systems.

Special-purpose multicircuit cable systems shall comply with the following requirements:

(1) Branch circuits shall be rated at not more than 20 amperes and not more than 150 volts to ground.

(2) Trunk cable types shall be extra-hard usage (hard service) or hard usage (junior hard service).

(3) The ampacity of trunk cables shall be determined in accordance with Table 520.44(C)(2)(1).

(4) Trunk cables, breakout assemblies, and multicircuit enclosures shall be listed.

(5) Section ~~406.8~~ 406.4(F) shall not apply to multicircuit, multipole plugs or receptacles that are part of a special-purpose multicircuit cable system.

(6) All multicircuit, multipole connectors shall be clearly marked with the voltage of the branch circuits serviced by the connector.

(7) Installation and operation shall be performed by qualified ~~personnel~~ persons .

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 16:55:00 EST 2022

Committee Statement

Committee Statement: The reference of 406.8 has been corrected to 406.4(f) due to an error made in the original FR and SR. The original intent of 520.68(D)(5) was to except the requirements of 406.4(F) of the non-interchangeability of the use of the same connector at different voltages, types of cirucits (AC or DC) or frequencies in the same facility.

Second Revision No. 8512-NFPA 70-2021 [Section No. 520.68(D)]

Second Correlating Revision No. 92-NFPA 70-2022 [Section No. 550.32(A)]

(A) Mobile Home Service Equipment.

The mobile home service equipment shall not be mounted in or on the mobile home. The service equipment shall be rated not less than that required in accordance with 550.32(C), mounted in a readily accessible outdoor location, and ~~visible from~~ within sight from the mobile home it serves. The mobile home service disconnect shall be permitted to be used as the emergency disconnect in accordance with 230.85. ~~Grounding at the disconnecting means shall be in accordance with 250.32 .~~

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Wed Feb 09 11:40:06 EST 2022

Committee Statement

Committee Statement: Delete the last sentence of 550.32(A). This revision is made to comply with the NEC Style Manual 4.1.1, as general requirements contained in Chapters 1 through 4 shall not be repeated in other articles of the document.

Second Revision No. 8649-NFPA 70-2021 [Section No. 550.32(A)]

Second Correlating Revision No. 33-NFPA 70-2022 [Section No. 555.6]

555.6 Load Calculations for Service and Feeder Conductors.

General lighting and other loads shall be calculated in accordance with Part III of Article 220, and, in addition, the demand factors set forth in ~~Table 555.6~~ 220.120 shall be permitted for each service and/or feeder circuit supplying receptacles that provide shore power for boats. ~~These calculations shall be permitted to be modified as indicated in notes (1) and (2) to Table 555.6 . Where demand factors of Table 555.6 are applied, the demand factor specified in 220.61(B) shall not be permitted.~~

~~Informational Note: These demand factors could be inadequate in areas of extreme hot or cold temperatures with loaded circuits for heating, air-conditioning, or refrigerating equipment.~~

~~Table 555.6 Demand Factors~~

~~Number of Shore Power Receptacles~~	~~Sum of the Rating of the Receptacles (%)~~
~~1–4~~	~~100~~
~~5–8~~	~~90~~
~~9–14~~	~~80~~
~~15–30~~	~~70~~
~~31–40~~	~~60~~
~~41–50~~	~~50~~
~~51–70~~	~~40~~
~~≥71~~	~~30~~

~~Notes:~~

~~1. Where shore power accommodations provide two receptacles specifically for an individual boat slip and these receptacles have different voltages (e.g., one 30-ampere, 125-volt and one 50-ampere, 125/250-volt), only the receptacle with the larger kilowatt demand shall be required to be calculated.~~

~~2. For each shore power pedestal being installed that includes an individual kilowatt-hour submeter for each slip and is being calculated using the criteria listed in Table 555.6, the total demand amperes shall be permitted to be multiplied by 0.9 to achieve the final demand amperes of the facility.~~

~~3. When a circuit feeding a boat hoist and shore power for the same boat slip is shared, only the load with the larger kilowatt demand shall be required to be counted in the load calculation.~~

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 14:51:56 EST 2022

Committee Statement

Committee Statement: The Correlating Committee directs that the section be revised as follows, The first sentence for 555.6 is retained with the reference to Table 555.6 be revised to

220.120. The balance of the section is removed.

Second Revision No. 8685-NFPA 70-2021 [Section No. 555.6]

Second Correlating Revision No. 17-NFPA 70-2022 [Section No. 600.5(D)]

(D) Wiring Methods.

Wiring methods used to supply signs shall comply with 600.5(D)(1), (D)(2), and (D)(3).

(1) Supply.

The wiring method used to supply signs and outline lighting systems shall terminate within a sign, an outline lighting system enclosure, a suitable box, a conduit body, or panelboard.

(2) Enclosures as Pull Boxes.

~~Electrical enclosures integral to the sign that are listed and labeled for the purpose are permitted to be used for voltages up to 600 volts as pull or junction boxes for conductors supplying other adjacent signs, outline lighting systems, or floodlights that are part of a sign and shall be permitted to contain both branch and secondary circuit conductors. Neon transformer boxes listed and labeled for the purpose shall be permitted to contain multiple voltages over 1000 volts. A disconnecting means shall be provided to de-energize all ungrounded conductors in the enclosures.~~

(a) ~~Electrical~~ Listed and labeled electrical enclosures integral to the sign ~~that are listed and labeled for the purpose are~~ shall be permitted to be used for voltages up to 600 volts as pull or junction boxes for conductors supplying the following:

(1) Other adjacent signs

(2) Outline lighting systems

(3) Floodlights that are part of a sign

(b) The enclosures in 600.5(D)(2)(a) shall be permitted to contain both branch and secondary circuit conductors.

(c) ~~Neon~~ Listed and labeled neon transformer boxes ~~listed and labeled for the purpose~~ shall be permitted to contain multiple voltages over 1000 volts. A disconnecting means shall be provided to de-energize all ungrounded conductors in the enclosures.

(3) Metal or Nonmetallic Poles.

Metal or nonmetallic poles used to support signs shall be permitted to enclose supply conductors~~, provided the poles and conductors are installed in accordance with 410.30(B)~~ .

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 10:57:25 EST 2022

Committee Statement

Committee Statement: Revision made to comply with the NEC Style Manual 4.1.1 general requirements contained in Chapters 1 through 4 shall not be repeated in other articles of the document.

Second Revision No. 8195-NFPA 70-2021 [Section No. 600.5(D)]

Second Correlating Revision No. 18-NFPA 70-2022 [Section No. 600.6]

600.6 Disconnects.

Each sign and outline lighting system, feeder ~~conductor(s)~~ conductors , or branch ~~circuit(s)~~ circuits supplying a sign, outline lighting system, or skeleton tubing shall be controlled by an externally operable switch or circuit breaker that opens all ungrounded conductors and controls no other load. ~~The indicating means of the disconnect shall be in accordance with 400.7 and clearly indicate the open (off) and closed (on) position. The switch or circuit breaker shall open all ungrounded conductors simultaneously on multiwire branch circuits in accordance with 210.4(B) .~~ Signs and outline lighting systems located within fountains shall have the disconnect located in accordance with 680.13.

Exception No. 1: A disconnecting means shall not be required for an exit directional sign located within a building.

Exception No. 2: A disconnecting means shall not be required for cord-connected signs with an attachment plug.

Informational Note: The location of the disconnect is intended to allow service or maintenance personnel and first responders complete and local control of the disconnecting means.

(A) Location.

The disconnecting means shall be accessible and located in accordance with 600.6(A)(1), 600.6(A)(2), or 600.6(A)(3). If the ~~resulting location of the~~ disconnecting means is remote from the sign it controls, it shall comply with 600.6(A)(4).

(1) At Point of Entry to a Sign.

The disconnect shall be located at the point the feeder circuit or branch ~~circuit(s)~~ circuits supplying a sign or outline lighting system enters a sign enclosure, a sign body, or a pole in accordance with 600.5(D)(3). The disconnect shall open all ungrounded conductors where it enters the enclosure of the sign or pole.

Exception No. 1: A disconnect shall not be required for branch ~~circuit(s)~~ circuits or feeder ~~conductor(s)~~ conductors passing through the sign where not accessible and enclosed in a Chapter 3 listed raceway or metal-jacketed cable identified for the location.

Exception No. 2: A disconnect shall not be required at the point of entry to a sign enclosure or sign body for branch ~~circuit(s)~~ circuits or feeder ~~conductor(s)~~ conductors that supply an internal ~~panelboard(s)~~ panelboards in a sign enclosure or sign body. The conductors shall be enclosed where not accessible in a Chapter 3 listed raceway or metal-jacketed cable identified for the location. A field-applied permanent ~~warning~~ hazard label that is visible during servicing shall be applied to the raceway at or near the point of entry into the sign enclosure or sign body. The ~~warning~~ danger label shall ~~comply with 110.21(B) and~~ state the following: "Danger. This raceway contains energized conductors." The marking shall include the location of the disconnecting means for the energized ~~conductor(s)~~ conductors . The disconnecting means shall be capable of being locked in the open position ~~in accordance with 110.25~~ .

(2) Within Sight of the Sign.

The disconnecting means shall be within sight of the sign or outline lighting system that it controls. Where the disconnecting means is out of the line of sight from any section that is able to be energized, the disconnecting means shall be lockable in accordance with 110.25. A permanent field-applied marking identifying the location of the disconnecting means shall be applied to the sign in a location visible during servicing. ~~The warning label shall comply with 110.21(B) .~~

(3) Within Sight of the Controller.

The following shall apply for signs or outline lighting systems operated by electronic or electromechanical controllers located external to the sign or outline lighting system:

(1) The disconnecting means shall be located within sight of the controller or in the same enclosure with the controller.

(2) The disconnecting means shall disconnect the sign or outline lighting system and the controller from all ungrounded supply conductors.

(3) The disconnecting means shall be designed such that no pole can be operated independently and shall be lockable in accordance with 110.25.

Exception: Where the disconnecting means is not located within sight of the controller, a permanent field-applied marking identifying the location of the disconnecting means shall be applied to the controller in a location visible during servicing. ~~The warning label shall comply with 110.21(B) .~~

(4) Remote Location.

The disconnecting means, if located remote from the sign, sign body, or pole, shall be mounted at an accessible location available to first responders and service personnel. The location of the disconnect shall be marked with a label at the sign location and marked as the disconnect for the sign or outline lighting system. ~~The label shall comply with 110.21(B) .~~

(B) Control Switch Rating.

Switches, flashers, and similar devices controlling transformers and electronic power supplies shall be rated for controlling inductive loads or have a current rating not less than twice the current rating of the transformer or the electronic power supply.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 11:03:33 EST 2022

Committee Statement

Committee Statement: Delete parentheses around the s in “conductor(s)”, “branch circuit(s)”, and panelboard(s), as normal wording is plural, in accordance with 3.3.3 of the NEC Style Manual. Revision made to comply with the NEC Style Manual 4.1.1 general requirements contained in Chapters 1 through 4 shall not be repeated in other articles of the document.

Second Revision No. 8196-NFPA 70-2021 [Section No. 600.6]

Second Correlating Revision No. 19-NFPA 70-2022 [Section No. 600.35]

600.35 Retrofit Kits.

(A) General.

A general-use or sign-specific retrofit kit for a sign or outline lighting system shall include installation instructions and requirements for field conversion of a host sign. The retrofit kit shall be listed and labeled.

~~**(B)** Installation.~~

~~The retrofit kit shall be installed in accordance with the installation instructions.~~

~~**(1)** Wiring Methods.~~

~~Wiring methods shall be in accordance with Chapter 3 .~~

~~*Exception: If powered from a Class 2 source, wiring methods shall be in accordance with 600.12(C) (1)(2) and (C)(2), 600.24 , and 600.33 .*~~

~~**(3)** Workmanship.~~

~~Field conversion workmanship shall be in accordance with 110.12 .~~

(B) Damaged Parts.

All parts that are not replaced by a retrofit kit shall be inspected for damage. Any part found to be damaged or damaged during conversion of the sign shall be replaced or repaired to maintain the sign or outline lighting system's dry, damp, or wet location rating.

(C) Marking.

The retrofitted sign shall be marked in accordance with 600.4(B).

Supplemental Information

File Name	Description	Approved
NEC_600.35_SCR19.docx	For staff use	

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 11:12:10 EST 2022

Committee Statement

Committee Statement: Revision made to comply with the NEC Style Manual 4.1.1 general requirements contained in Chapters 1 through 4 shall not be repeated in other articles of the document.

Second Correlating Revision No. 20-NFPA 70-2022 [Section No. 605.3]

605.3 General.

Wiring systems shall be identified as suitable for providing power for lighting accessories and utilization equipment used within office furnishings. A wired partition shall not extend from floor to ceiling. ~~These assemblies shall be installed and used only as provided for by this article.~~

Exception: Where permitted by the authority having jurisdiction, these relocatable wired partitions shall be permitted to extend to, but shall not penetrate, the ceiling.

~~**(A)** Use.~~

~~These assemblies shall be installed and used only as provided for by this article.~~

~~**(A)** Hazardous (Classified) Locations.~~

~~Where used in hazardous (classified) locations, these assemblies shall comply with the requirements for such locations in addition to this article.~~

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 11:14:13 EST 2022

Committee Statement

Committee Statement: The last sentence is unnecessary, and is removed to improve clarity.

Second Revision No. 8193-NFPA 70-2021 [Section No. 605.3]

Second Correlating Revision No. 5-NFPA 70-2022 [Section No. 620.6]

620.6 Ground-Fault Circuit-Interrupter Protection for Personnel.

(A) ~~GFCI Receptacle~~ Pits, Hoistways, and on Cars .

Each 125-volt, single-phase, 15- and 20-ampere receptacle installed in pits, in hoistways, on the cars of elevators and dumbwaiters associated with wind turbine tower elevators, on the platforms or in the runways and machinery spaces of platform lifts and stairway chairlifts, and in escalator and moving walk wellways shall be a listed Class A ground-fault circuit-interrupter type.

(B) ~~GFCI Receptacle or GFCI Circuit Breaker~~ Machine Rooms, Control Spaces, Machinery Spaces, Control Rooms, and Truss Interiors .

All 125-volt, single-phase, 15- and 20-ampere receptacles installed in machine rooms, control spaces, machinery spaces, ~~and~~ control rooms, and truss interiors shall have listed Class A ground-fault circuit-interrupter protection for personnel.

(C) ~~Single Receptacle GFCI Protected~~ Sump Pumps .

A permanently installed sump pump shall be permanently wired or shall be supplied by a ~~single~~ receptacle that is protected by a listed Class A ground-fault circuit-interrupter.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 10:14:55 EST 2022

Committee Statement

Committee Statement: Delete “GFCI Receptacle” from title of subdivision (C), for parallel construction with 620.6(A) and (B), in accordance with 3.3.5 of the NEC Style Manual. Section 620.6 stipulates the kind of GFCI protection to be used in specific locations.

Second Revision No. 7507-NFPA 70-2021 [Section No. 620.6]

Second Correlating Revision No. 6-NFPA 70-2022 [Section No. 620.21]

620.21 Wiring Methods.

Conductors, cables, and optical fiber cables located in hoistways, escalator and moving walk wellways, platform lifts, stairway chairlift runways, machinery spaces, control spaces, in or on cars, machine rooms, and control rooms, not including the traveling cables connecting the car or counterweight and hoistway wiring, shall be installed in rigid metal conduit, intermediate metal conduit, electrical metallic tubing, rigid nonmetallic conduit, or wireways, or shall be Type MC, MI, or AC cable unless otherwise permitted in 620.21(A) through (C). Unused conductors in an enclosure shall be insulated or protected from accidental contact with exposed live parts.

Exception: Cords and cables of listed cord-and-plug-connected equipment shall not be required to be installed in a raceway.

Informational Note: When an elevator is classified as a fire service access elevator or occupant evacuation operation elevator, some building codes require additional protection for conductors that are located outside of the elevator hoistway and machine room.

(A) Elevators.

(1) Hoistways and Pits.

(a) Types CL2P, CL2R, and CL2 cables shall be permitted, provided the cables are supported and protected from physical damage. Substitute cables for Class 2 cables installed in accordance with ~~725.154(A)~~ 722.135(E) shall be permitted.

(b) Flexible cords and cables that are components of listed equipment and used in circuits operating at 30 volts rms or less or 42 volts dc or less shall be permitted, provided the cords and cables are supported and protected from physical damage and are of a jacketed and flame-retardant type.

(c) The following wiring methods shall be permitted in the hoistway in lengths not to exceed 1.8 m (6 ft):

(1) Flexible metal conduit.

(2) Liquidtight flexible metal conduit.

(3) Liquidtight flexible nonmetallic conduit.

(4) Flexible cords and cables, or conductors grouped together and taped or corded, shall be permitted to be installed without a raceway. They shall be located to be protected from physical damage, shall be of a flame-retardant type, and shall be part of one of the following:

a. Listed equipment

b. Driving machine

c. Driving machine brake

Exception to 620.21(A)(1)(c)(1), (A)(1)(c)(2), and (A)(1)(c)(3): The conduit length shall not be required to be limited between risers and limit switches, interlocks, operating buttons, and similar devices.

(d) A sump pump or oil recovery pump located in the pit shall be permitted to be cord connected. The cord shall be a hard usage oil-resistant type, of a length not to exceed 1.8 m (6 ft), and shall be located to be protected from physical damage.

(e) Hard-service cords and junior hard-service cords that conform to the requirements of Article 400 (Table 400.4) shall be permitted as flexible connections between the fixed wiring in the hoistway and hoistway access switches when located in the hoistway door sight guard.

Informational Note: See ASME A17.1-2019/CSA B44-19, *Safety Code for Elevators and Escalators*.

(2) Cars.

(a) Flexible metal conduit, liquidtight flexible metal conduit, or liquidtight flexible nonmetallic conduit of metric designator 12 (trade size ⅜), or larger, not exceeding 1.8 m (6 ft) in length, shall be permitted on cars where so located as to be free from oil and if securely fastened in place.

Exception: Liquidtight flexible nonmetallic conduit (LFNC-B) of metric designator 12 (trade size ⅜), or larger, as defined in Article 100 (LFNC-B), shall be permitted in lengths in excess of 1.8 m (6 ft).

(b) Hard-service cords and junior hard-service cords that conform to the requirements of Article 400 (Table 400.4) shall be permitted as flexible connections between the fixed wiring on the car and devices on the car doors or gates. Hard-service cords only shall be permitted as flexible connections for the top-of-car operating device or the car-top work light. Devices or luminaires shall be grounded by means of an equipment grounding conductor run with the circuit conductors. Cables with smaller conductors and other types and thicknesses of insulation and jackets shall be permitted as flexible connections between the fixed wiring on the car and devices on the car doors or gates, if listed for this use.

(c) Flexible cords and cables that are components of listed equipment and used in circuits operating at 30 volts rms or less or 42 volts dc or less shall be permitted, provided the cords and cables are supported and protected from physical damage and are of a jacketed and flame-retardant type.

(d) The following wiring methods shall be permitted on the car assembly in lengths not to exceed 1.8 m (6 ft):

(1) Flexible metal conduit

(2) Liquidtight flexible metal conduit

(3) Liquidtight flexible nonmetallic conduit

(4) Flexible cords and cables, or conductors grouped together and taped or corded, shall be permitted to be installed without a raceway. They shall be located to be protected from physical damage and shall be of a flame-retardant type and shall be part of one of the following:

a. Listed equipment

b. A driving machine

c. A driving machine brake

(3) Within Machine Rooms, Control Rooms, and Machinery Spaces and Control Spaces.

(a) Flexible metal conduit, liquidtight flexible metal conduit, or liquidtight flexible nonmetallic conduit of metric designator 12 (trade size ⅜), or larger, not exceeding 1.8 m (6 ft) in length, shall be permitted between control panels and machine motors, machine brakes, motor-generator sets, disconnecting means, and pumping unit motors and valves.

Exception: Liquidtight flexible nonmetallic conduit (LFNC-B) metric designator 12 (trade size ⅜) or larger~~, as defined in Article 100 (LFNC-B),~~ shall be permitted to be installed in lengths in excess of 1.8 m (6 ft).

(b) Where motor-generators, machine motors, or pumping unit motors and valves are located adjacent to or underneath control equipment and are provided with extra-length terminal leads not exceeding 1.8 m (6 ft) in length, such leads shall be permitted to be extended to connect directly to controller terminal studs without regard to the carrying-capacity requirements of Articles 430 and 445. Auxiliary gutters shall be permitted in machine and control rooms between controllers, starters, and similar apparatus.

(c) Flexible cords and cables that are components of listed equipment and used in circuits operating at 30 volts rms or less or 42 volts dc or less shall be permitted, provided the cords and cables are supported and protected from physical damage and are of a jacketed and flame-retardant type.

(d) On existing or listed equipment, conductors shall also be permitted to be grouped together and taped or corded without being installed in a raceway. Such cable groups shall be supported at intervals not over 900 mm (3 ft) and located so as to be protected from physical damage.

(e) Flexible cords and cables in lengths not to exceed 1.8 m (6 ft) that are of a flame-retardant type and located to be protected from physical damage shall be permitted in these rooms and spaces without being installed in a raceway. They shall be part of one of the following:

(1) Listed equipment

(2) A driving machine

(3) A driving machine brake

(4) Counterweight.

The following wiring methods shall be permitted on the counterweight assembly in lengths not to exceed 1.8 m (6 ft):

(1) Flexible metal conduit

(2) Liquidtight flexible metal conduit

(3) Liquidtight flexible nonmetallic conduit

(4) Flexible cords and cables, or conductors grouped together and taped or corded, shall be permitted to be installed without a raceway. They shall be located to be protected from physical damage, shall be of a flame-retardant type, and shall be part of one of the following:

a. Listed equipment

b. A driving machine

c. A driving machine brake

(B) Escalators.

(1) Wiring Methods.

Flexible metal conduit, liquidtight flexible metal conduit, or liquidtight flexible nonmetallic conduit shall be permitted in escalator and moving walk wellways. Flexible metal conduit or liquidtight flexible conduit of metric designator 12 (trade size ⅜) shall be permitted in lengths not in excess of 1.8 m (6 ft).

Exception: Metric designator 12 (trade size ⅜), nominal~~,~~ or larger liquidtight flexible nonmetallic conduit~~, as defined in Article 100~~ (LFNC-B)~~,~~ shall be permitted to be installed in lengths in excess of 1.8 m (6 ft).

(2) Class 2 Circuit Cables.

Types CL2P, CL2R, and CL2 cables shall be permitted to be installed within escalators and moving walkways, provided the cables are supported and protected from physical damage. Substitute cables for Class 2 cables installed in accordance with ~~725.154(A)~~ 722.135(E) shall be permitted.

(3) Flexible Cords.

Hard-service cords that conform to the requirements of Article 400 (Table 400.4) shall be permitted as flexible connections on escalators and moving walk control panels and disconnecting means where the entire control panel and disconnecting means are arranged for removal from machine spaces as permitted in 620.5.

(C) Platform Lifts and Stairway Chairlift Raceways.

(1) Wiring Methods.

Flexible metal conduit or liquidtight flexible metal conduit shall be permitted in platform lifts and stairway chairlift runways and machinery spaces. Flexible metal conduit or liquidtight flexible conduit of metric designator 12 (trade size ⅜) shall be permitted in lengths not in excess of 1.8 m (6 ft).

Exception: Metric designator 12 (trade size ⅜) or larger liquidtight flexible nonmetallic conduit~~, as defined in Article 100~~ (LFNC-B)~~,~~ shall be permitted to be installed in lengths in excess of 1.8 m (6 ft).

(2) Class 2 Circuit Cables.

Types CL2P, CL2R, and CL2 cables shall be permitted to be installed within platform lifts and stairway chairlift runways and machinery spaces, provided the cables are supported and protected from physical damage. Substitute cables for Class 2 cables installed in accordance with ~~725.154(A)~~ 722.135(E) shall be permitted.

(3) Flexible Cords and Cables.

Flexible cords and cables that are components of listed equipment and used in circuits operating at 30 volts rms or less or 42 volts dc or less shall be permitted in lengths not to exceed 1.8 m (6 ft), provided the cords and cables are supported and protected from physical damage and are of a jacketed and flame-retardant type.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 10:18:52 EST 2022

Committee Statement

Committee Statement: Section 620.21, in 4 locations (all within “exceptions”), require removal of the reference to Article 100. These exceptions should only have a reference to the particular wiring method. These revisions are made to comply with the NEC Style Manual 4.1.1, as general requirements contained in Chapters 1 through 4 shall not be repeated in other articles of the document.

Second Revision No. 7511-NFPA 70-2021 [Section No. 620.21]

Second Correlating Revision No. 7-NFPA 70-2022 [Section No. 620.23]

620.23 Branch Circuits for Machine Room, Control Room/Machinery Space, Control Space, ~~Cartop Lighting,~~ or Truss Interior Lighting and Receptacle(s).

(A) Separate Branch Circuits.

The branch ~~circuit(s)~~ circuits supplying the lighting for machine rooms, control rooms, machinery spaces, control spaces, ~~cartop lighting,~~ or truss ~~interior lighting~~ interiors, where required, shall be separate from the branch ~~circuit(s)~~ circuits supplying the ~~receptacle(s)~~ receptacles in those places. These circuits shall supply no other loads.

Required lighting shall not be connected to the load side of a ground-fault circuit interrupter.

(B) Lighting Switch.

The machine room, control room/machinery space, or control space lighting switch shall be located at the point of entry.

(C) Duplex Receptacle.

At least one 125-volt, single-phase, 15- or 20-ampere duplex receptacle shall be provided in each machine room, control room and machinery space, control space, and in truss ~~interior~~ interiors where required .

Informational Note: See ASME A17.1-~~2019~~ /CSA B44-~~19~~ , *Safety Code for Elevators and Escalators*, for illumination levels and receptacle requirements .

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 10:22:12 EST 2022

Committee Statement

Committee Statement: Delete parentheses around the s in “circuit(s)” and “receptacle(s)”, as normal wording is plural, in accordance with 3.3.3 of the NEC Style Manual.

Second Revision No. 7530-NFPA 70-2021 [Section No. 620.23]

Second Correlating Revision No. 8-NFPA 70-2022 [Section No. 620.51(E)]

(E) ~~Overvoltage~~ Surge Protection.

Where any of the disconnecting means in 620.51 has been designated as supplying an emergency system load, a legally required system load, or a critical operation power system load, a listed ~~surge-protective device (~~ SPD~~)~~ shall be installed ~~in accordance with Part II of Article~~ ~~242~~ .

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 10:24:35 EST 2022

Committee Statement

Committee Statement: Revision made to comply with the NEC Style Manual 4.1.1 general requirements contained in Chapters 1 through 4 shall not be repeated in other articles of the document. Additionally, the acronym “SPD” is used consistent with NEC Style Manual 3.2.3.

Second Revision No. 7567-NFPA 70-2021 [Section No. 620.51(E)]

Second Correlating Revision No. 9-NFPA 70-2022 [Section No. 625.42(A)]

(A) ~~Load~~ Energy Management System (EMS) .

Where ~~a~~ an EMS in accordance with 750.30 provides load management ~~system is used~~ of EVSE , the maximum equipment load on a service and feeder shall be the maximum load permitted by the ~~load management system~~ EMS . The ~~load management system~~ EMS shall be permitted to be integral to one piece of equipment or integral to a listed system consisting of more than one piece of equipment. When one or more pieces of equipment are provided with an integral load management control, the system shall be marked to indicate this control is provided.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 10:29:06 EST 2022

Committee Statement

Committee Statement: In the second sentence, add “more than” to correct the requirement, consistent with the original Public Input 3118. Without “more than”, the requirement is redundant and unclear.

Second Revision No. 7716-NFPA 70-2021 [Section No. 625.42(A)]

Second Correlating Revision No. 10-NFPA 70-2022 [Section No. 625.42(B)]

(B) EVSE with Adjustable Settings.

~~Adjustable settings~~ EVSE with restricted access to an ampere adjusting means complying with 750.30(C) shall be permitted. If adjustments have an impact on the rating label, those changes shall be in accordance with manufacturer's instructions, and the adjusted rating shall appear on the rating label with sufficient durability to withstand the environment involved. ~~Electric vehicle supply equipment~~ EVSE ~~with restricted access to an ampere adjusting means~~ as referenced shall be permitted to have ampere ratings that are equal to the adjusted current setting. ~~Sizing the service and feeder to match the adjusting means shall be permitted. Access to the ampere adjusting means of an EVSE shall be restricted if it is not to be accessed by a user after installation. Such restricted access shall be accomplished by at least one of the following:~~

(0) ~~A cover or door that requires the use of a tool to open~~

(0) ~~Locked doors accessible only to qualified personnel~~

(0) ~~Password protected commissioning software accessible only to qualified personnel~~

(0) ~~Commissioning software that defaults to the factory setting after the initial installation setting with the factory setting being the lowest setting in the range~~

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 10:31:09 EST 2022

Committee Statement

Committee Statement: The Committee Statement indicates that the requirements were removed as they were relocated to Article 750. Without reference to 750.30(C), there are no requirements. The revision corrects this oversight.

Second Revision No. 7721-NFPA 70-2021 [Section No. 625.42(B)]

Second Correlating Revision No. 11-NFPA 70-2022 [Section No. 630.8]

630.8 Ground-Fault Circuit-Interrupter Protection for Personnel.

All 125-volt, ~~single-phase,~~ 15- and 20-ampere receptacles for electrical hand tools or portable lighting equipment, supplied by single-phase branch circuits rated 150 volts or less to ground , installed in work areas where welders are operated~~, for electrical hand tools or portable lighting equipment~~ shall have ground-fault circuit-interrupter protection for personnel.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 10:33:41 EST 2022

Committee Statement

Committee Statement: This section is revised for clarity. As stated in comments during ballot - the intent is not for the welder receptacle itself, but for all the other receptacles in that area where other tools might be connected and come in contact with the water used in the welding process.

Second Revision No. 7585-NFPA 70-2021 [Section No. 630.8]

Second Correlating Revision No. 12-NFPA 70-2022 [Section No. 670.1]

670.1 Scope.

This article covers the ~~definition of, the~~ nameplate data for, overvoltage protection for, and the size and overcurrent protection of supply conductors to industrial machinery.

Informational Note No. 1: See NFPA 79-~~2021~~ , *Electrical Standard for Industrial Machinery*, for further information.

Informational Note No. 2: See 110.26 for information on the workspace requirements for equipment containing supply conductor terminals.

Informational Note No. 3: See NFPA 79-~~2021~~ , *Electrical Standard for Industrial Machinery*, for information on the workspace requirements for machine power and control equipment.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 10:37:56 EST 2022

Committee Statement

Committee Statement: Definitions have been relocated to Article 100. The reference to the definition is removed from the Scope statement.

Second Revision No. 7648-NFPA 70-2021 [Section No. 670.1]

Second Correlating Revision No. 64-NFPA 70-2022 [Section No. 680.9(A)]

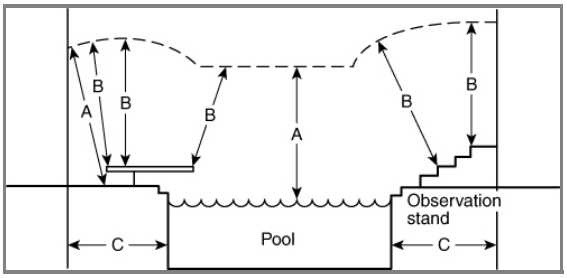
(A) Power.

Overhead conductors and open overhead wiring not in ~~an enclosed~~ a raceway shall comply with the minimum clearances given in Table 680.9(A) and illustrated in Figure 680.9(A).

Table 680.9(A) Overhead Conductor Clearances

	Clearance Parameters	Insulated Cables, 0–750 Volts to Ground, Supported on and Cabled Together with a Solidly Grounded Bare Messenger or Solidly Grounded Neutral Conductor		All Other Conductors Voltage to Ground			
				0 through 15 kV		Over 15 through 50 kV	
		m	ft	m	ft	m	ft
A.	Clearance in any direction to the water level, edge of water surface, base of diving platform, or permanently anchored raft	6.9	22.5	7.5	25	8.0	27
B.	Clearance in any direction to the observation stand, tower, or diving platform	4.4	14.5	5.2	17	5.5	18
C.	Horizontal limit of clearance measured from inside wall of the pool	This limit shall extend to the outer edge of the structures listed in A and B of this table but not less than 3 m (10 ft).					

Figure 680.9(A) Clearances from Pool Structures.



Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 08 17:19:08 EST 2022

Committee Statement

Committee Statement: The revision is made to remove a defined term which could create confusion in the requirement. The term “enclosed” is used incorrectly in the context of the requirement.

Second Revision No. 8385-NFPA 70-2021 [Section No. 680.9(A)]

Second Correlating Revision No. 70-NFPA 70-2022 [Section No. 690.7 [Excluding any Sub-Sections]]

The maximum voltage ~~of PV system dc circuits~~ shall be ~~the highest voltage between any two conductors of a circuit or any conductor and ground. The maximum voltage shall be~~ used to determine the voltage and voltage to ground of circuits in the application of this *Code*. Maximum voltage shall be used for conductors, cables, equipment, working space, and other applications where voltage limits and ratings are used. The maximum voltage of PV system dc circuits shall be the highest voltage between any two conductors of a circuit or any conductor and ground and shall comply with the following:

(1) PV system dc circuits shall not exceed 1000 volts within or originating from arrays located on or attached to buildings and PV system dc circuits inside buildings ~~shall have a maximum voltage no greater than 1000 volts~~ .

(2) PV system dc circuits shall not exceed 600 volts on or in one- and two-family dwellings ~~shall have a maximum voltage no greater than 600 volts~~ .

(3) PV system dc circuits ~~with a maximum voltage greater than~~ exceeding 1000 volts shall comply with 690.31(G).

~~PV system dc circuits within or originating from arrays located on or attached to buildings and PV system dc circuits inside buildings shall have a maximum voltage no greater than 1000 volts. PV system dc circuits on or in one- and two-family dwellings shall have a maximum voltage no greater than 600 volts. PV system dc circuits with a maximum voltage greater than 1000 volts shall comply with 690.31(G).~~

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Wed Feb 09 09:25:32 EST 2022

Committee Statement

Committee Statement: The Correlating Committee revised this section for clarity and compliance with 3.2.2 of the NEC Style Manual.

Second Revision No. 8318-NFPA 70-2021 [Section No. 690.7 [Excluding any Sub-Sections]]

Second Correlating Revision No. 71-NFPA 70-2022 [Section No. 691.4]

691.4 Special Requirements for Large-Scale PV Electric Supply Stations.

Large-scale PV electric supply stations shall be accessible only to authorized personnel and comply with the following:

(1) Electrical circuits and equipment shall be maintained and operated only by qualified persons.

Informational Note No. 1: ~~Refer to~~ See NFPA *70E*-2021, *Standard for Electrical Safety in the Workplace*, for electrical safety requirements.

(2) Access to PV electric supply stations shall be restricted in accordance with 110.31. Field-applied hazard markings shall be applied in accordance with 110.21(B).

(3) The connection between the PV electric supply station and the system operated by a utility for the transfer of electrical energy shall be through medium- or high-voltage switch gear, substation, switch yard, or similar methods whose sole purpose shall be to ~~safely and effectively~~ interconnect the two systems.

(4) The electrical loads within the PV electric supply station shall only be used to power auxiliary equipment for the generation of the PV power.

(5) Large-scale PV electric supply stations shall not be installed on buildings.

(6) The station ~~is~~ shall be monitored from a central command center.

(7) The station ~~has~~ shall have an inverter generating capacity of at least 5000 kW.

Informational Note No. 2: Some individual sites with capacities ~~between 2000 kW and~~ less than 5000 kW are operated as part of a group of facilities with a total generating capacity ~~of well over~~ exceeding 5000 kW.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Wed Feb 09 09:29:15 EST 2022

Committee Statement

Committee Statement: The Correlating Committee revised the informational note to remove the term “much” in compliance with 3.2.2 of the NEC Style Manual. The terms “safely” and “effectively” were deleted as possibly vague and unenforceable language in accordance with 3.2.1 of the NEC Style Manual.

Second Revision No. 8351-NFPA 70-2021 [Section No. 691.4]

Second Correlating Revision No. 75-NFPA 70-2022 [Section No. 700.4(B)]

(A) Capacity.

An emergency system shall have adequate capacity in accordance with Parts I through IV of Article 220 or by another approved method. The system capacity shall be sufficient for the rapid load changes and transient power and energy requirements associated with any expected loads.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Wed Feb 09 09:46:29 EST 2022

Committee Statement

Committee Statement: The Correlating Committee revised the first sentence in this requirement to improve clarity.

Second Revision No. 7947-NFPA 70-2021 [Section No. 700.4(B)]

Second Correlating Revision No. 76-NFPA 70-2022 [Section No. 700.11(B)]

(B) Identification.

Emergency circuits shall be permanently marked so they will be readily identified as a component of an emergency circuit or system by the following methods:

(1) All boxes and enclosures for Class 2 emergency circuits shall be permanently marked as a component of an emergency circuit or system.

(2) ~~Where boxes or enclosures are not encountered, exposed~~ Exposed cable, cable tray, or raceway~~s~~ systems shall be permanently marked to be identified as a component of an emergency circuit or system, within ~~3 m~~ 900 mm (~~1~~ 3 ft) of each connector and at intervals not to exceed 7.6 m (25 ft).

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Wed Feb 09 09:49:10 EST 2022

Committee Statement

Committee Statement: Editorial revision made to comply with the NEC Style Manual.

Second Revision No. 7994-NFPA 70-2021 [Section No. 700.11(B)]

Second Correlating Revision No. 72-NFPA 70-2022 [Section No. 705.13]

705.13 ~~Power Control~~ Energy Management Systems (EMS) .

~~A power control system (PCS) shall be listed and evaluated to control the output of one or more power production sources, energy storage systems (ESS), energy management systems, and other equipment. The PCS shall limit current and loading on the busbars and conductors supplied by the PCS~~ An EMS in accordance with 750.30 shall be permitted to limit current and loading on the busbars and conductors supplied by the output of one or more interconnected electric power production or energy storage sources .

Informational Note: A listed power control system (PCS) is a type of EMS that is capable of monitoring multiple power sources and controlling the current on busbars and conductors to prevent overloading. See UL 1741, *Inverters, Converters, Controllers and Interconnection System Equipment for Use with Distributed Energy Resources* , and UL 916, *Energy Management Equipment*, for information on PCS and EMS.

~~For the circuits connected to a PCS, the PCS shall limit the current to the ampacity of the conductors or the ampere ratings of the busbars to which it is connected in accordance with 705.13(A) through (E).~~

~~**(A)** Monitoring.~~

~~The PCS controller shall monitor all currents within the PCS. Any busbar or conductor on the load side of the service disconnecting means that is not monitored by the PCS shall comply with 705.12 . Where the PCS is connected in accordance with 705.11 , the PCS shall monitor the service conductors and prevent overload of these conductors.~~

~~**(B)** Settings.~~

~~The sum of all PCS-controlled currents plus all monitored currents from other sources of supply shall not exceed the rating of any busbar or the ampacity of any conductor supplied by the power production sources. Where the PCS is connected to an overcurrent device protecting any busbar or conductor not monitored by the PCS, the setting of the PCS controller shall be set within the ratings of that overcurrent device.~~

~~**(C)** Overcurrent Protection.~~

~~The PCS shall provide overcurrent protection either by overcurrent devices or by the PCS including the functionality as an overcurrent device in the product listing.~~

~~Informational Note: Some PCSs are listed to provide overcurrent protection.~~

~~**(D)** Single Power Source Rating.~~

~~The rating of the overcurrent device for any single power source controlled by the PCS shall not exceed the rating of the busbar or the ampacity of the conductors to which it is connected.~~

~~**(E)** Access to Settings.~~

~~The access to settings of the PCS shall be restricted to qualified personnel in accordance with 240.6(C) .~~

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Wed Feb 09 09:32:15 EST 2022

Committee Statement

Committee Statement: The Correlating Committee has corrected the reference for energy management systems from “705.30” to “750.30” to align with the location of the requirements as noted in the panel statement for SR 8366.

Second Revision No. 8366-NFPA 70-2021 [Section No. 705.13]

Second Correlating Revision No. 73-NFPA 70-2022 [Section No. 705.20]

Global SCR-124

705.20 Source Disconnecting Means.

Means shall be provided to disconnect power source output ~~circuit~~ conductors of electric power production equipment from conductors of other systems. ~~Specific source disconnecting means required elsewhere in this *Code* that comply with 705.20 shall be permitted to meet this requirement.~~ A single disconnecting means ~~in accordance with 705.20~~ shall be permitted to disconnect multiple power sources from conductors of other systems.

Informational Note: See 480.7, Part II of Article 445, Part ~~II,~~III of Article 690, Part III, of Article 692, Part III, of Article 694, and Part ~~III~~II of ~~and~~ Article 706~~Part II~~ for specific source disconnecting means requirements.

The disconnecting means shall comply with the following:

(1) Be one of the following types:

a. A manually operable switch or circuit breaker

b. A load-break-rated pull-out switch

c. A power-operated or remote-controlled switch or circuit breaker that is manually operable locally and opens automatically when control power is interrupted

d. A device listed or approved for the intended application

(2) Simultaneously disconnect all ungrounded conductors of the circuit

(3) Located where readily accessible

(4) Externally operable without exposed live parts

(4) ~~Enclosures with doors or hinged covers containing exposed energized parts when the door or cover is open that require a tool to open or are locked where readily accessible to unqualified persons~~

(5) Plainly indicate whether in the open (off) or closed (on) position

(6) Have ratings sufficient for the maximum circuit current, available fault current, and voltage that is available at the terminals

(7) Where the line and load terminals are capable of being energized in the open position, be marked with the following words or equivalent:

WARNING

ELECTRIC SHOCK HAZARD TERMINALS ON THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION.

Informational Note: With interconnected power sources, some equipment, including switches and fuses, is capable of being energized from both directions.

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Wed Feb 09 09:33:51 EST 2022

Committee Statement

Committee Statement: The Correlating Committee removed the phrase “in accordance with 705.20” to eliminate redundancy and comply with 4.1.1 of the NEC Style Manual.

Second Revision No. 8378-NFPA 70-2021 [Section No. 705.20]

Second Correlating Revision No. 74-NFPA 70-2022 [Section No. 710.6]

710.6 Equipment Approval.

All power production equipment or systems shall be approved for use in island mode ~~use in accordance~~ and comply with one of the following:

(1) Be listed ~~for the application~~

(2) Be evaluated for the application and have a field label applied

~~Informational Note: Stand-alone inverters operate in island mode. A multimode inverter will only operate in island mode if it is not connected to an electric utility supply. Inverters identified only for stand-alone applications are not evaluated for and are not intended for connection to export power in parallel with an electric utility.~~

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Wed Feb 09 09:41:55 EST 2022

Committee Statement

Committee Statement: This is an editorial correction to improve grammar and clarity.

Second Revision No. 8421-NFPA 70-2021 [Section No. 710.6]

Second Correlating Revision No. 126-NFPA 70-2022 [Section No. 722.1]

722.1 Scope.

This article covers the general requirements for the installation of single- and multiple-conductor cables used in Class 2 and Class 3 power-limited circuits, power-limited fire alarm (PLFA) circuits, ~~and optical fiber installations. Parts I and V of this article provide the general cable requirements for power-limited circuit conductors and cables. Part II covers additional cable requirements specifically for Class 2 and Class 3 circuits. Part III covers additional cable requirements specifically for fire alarm systems. Part IV covers additional cable requirements specifically for optical fiber cables~~ Class 4 fault-managed power circuits, and optical fiber installations .

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Fri Feb 11 15:23:53 EST 2022

Committee Statement

Committee Statement: Terminology for “Class 4” and “Fault-Managed” are updated for consistency and correlation.

SR-8387-NFPA 70-2021

Second Correlating Revision No. 128-NFPA 70-2022 [Section No. 722.12]

722.10 ~~Uses Not Permitted~~ Hazardous (Classified) Locations .

~~Cables shall not be installed in any hazardous (classified) location, except as~~ Class 4 cables shall be permitted to be used in hazardous (classified) locations where specifically permitted by other articles of this *Code*.

~~Informational Note: See Articles 500 through 516 and Article 517, Part IV for information on hazardous locations.~~

Supplemental Information

File Name	Description	Approved
NEC_722.12_SCR128.docx	For staff use	

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Fri Feb 11 15:34:07 EST 2022

Committee Statement

Committee Statement: The permitted use in Hazardous Classified Locations is moved to 722.10, and is modified to use similar language from 337.10 regarding applications in hazardous locations.

Committee Comment No. 8395-NFPA 70-2021 [Section No. 722.12]

Second Correlating Revision No. 99-NFPA 70-2022 [Section No. 725.12]

725.10 ~~Uses Not Permitted~~ Hazardous (Classified) Locations .

Cables and equipment shall be permitted to be used in hazardous (classified) locations ~~shall not be installed in any hazardous (classified) location, except as~~ where specifically permitted by other articles ~~of~~ in this *Code*.

~~Informational Note: Hazardous locations are covered in Articles 500 through 516 and in Article 517, Part IV.~~

Submitter Information Verification

Committee: NEC-AAC

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Committee Statement

Committee Statement: The permitted use in Hazardous Classified Locations is moved to 725.10, and is modified to use similar language from 337.10 regarding applications in hazardous locations.

SR-8500-NFPA 70-2021

Second Correlating Revision No. 130-NFPA 70-2022 [Section No. 726.1]

Detail SR-8261

726.1 Scope.

This article covers the installation of wiring systems and equipment, including utilization equipment, of Class 4 fault-managed power (FMP) systems~~, including utilization equipment incorporating parts of these systems~~.

~~Informational Note No. 1: See Article 100 for definitions related to this section.~~

Informational Note No. 1: Class 4 fault-managed power systems consist of a Class 4 power transmitter and a Class 4 power receiver connected by a Class 4 cabling system. These systems are characterized by monitoring the circuit for faults and controlling the ~~power transmitted~~source current to ensure the energy ~~and power~~ delivered into any fault is limited. Class 4 systems differ from Class 1, Class 2, and Class 3 systems in that they are not limited for power delivered to an appropriate load. They are ~~power~~current limited ~~with respect to risk of shock and fire~~for faults between the Class 4 transmitter and Class 4 receiver.

Informational Note No. 2: The circuits described in this article are characterized by monitoring and control systems that differentiate them from electric light and power circuits; therefore, alternative requirements to those of Chapters 1 through 4 are given ~~regarding minimum wire sizes, ampacity adjustment and correction factors, overcurrent protection, insulation requirements, and wiring methods and materials~~.

Supplemental Information

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Submitter Information Verification

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Committee Statement

Committee Statement: Terminology for “Class 4” and “Fault-Managed” are updated for consistency and correlation. “CL4” is replaced with “Class 4” where not associated with the designation of the cable.

Second Correlating Revision No. 101-NFPA 70-2022 [Section No. 726.12]

726.10 Hazardous (Classified) Locations.

~~Cables shall not be installed in any hazardous (classified) location shall be installed in accordance with 500.1 , 505.1 , and 506.1 .~~ Class 4 power systems shall be permitted to be used in hazardous (classified) locations where specifically permitted by other articles in this *Code* .

~~**(A)** Hazardous (Classified) Locations.~~

~~Cables shall not be installed in any hazardous (classified) location, except as permitted by other articles of this *Code* .~~

~~Informational Note: Hazardous locations are covered in Articles 500 through 516 and in Part IV of Article 517.~~

~~**(B)** Other Applications.~~

~~Class 4 cables shall not be permitted for any applications that are not part of a Class 4 distribution system.~~

~~*Exception: Use of CL4 cable for other applications shall be permitted if the cable has multiple listings.*~~

Submitter Information Verification

Committee: NEC-AAC

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Committee Statement

Committee Statement: The permitted use in Hazardous Classified Locations is moved to 726.10, and is modified to use similar language from 337.10 regarding applications in hazardous locations.

SR-8297-NFPA 70-2021

Second Correlating Revision No. 102-NFPA 70-2022 [Section No. 726.136]

726.136 Separation from Electric Light, Power, Class 1, Non–Power-Limited Fire Alarm Circuit, and Medium-Power Network-Powered Broadband Communications Cables.

(A) General.

Cables and conductors of ~~CL4~~ Class 4 circuits shall not be placed in any cable, cable tray, compartment, enclosure, manhole, outlet box, device box, raceway, or similar fitting with conductors of electric light, power, Class 1, non–power-limited fire alarm, and medium-power network-powered broadband communications circuits unless permitted by 726.136(B) through (~~I~~ H).

(B) Separated by Barriers.

Class 4 circuits shall be permitted to be installed together with the conductors of electric light, power, Class 1, non–power-limited fire alarm, and medium-power network-powered broadband communications circuits where they are separated by a barrier.

(C) Raceways Within Enclosures.

In enclosures, Class 4 circuits shall be permitted to be installed in a raceway to separate them from Class 1, non–power-limited fire alarm, and medium-power network-powered broadband communications circuits.

(D) Associated Systems Within Enclosures.

Class 4 circuit conductors in compartments, enclosures, device boxes, outlet boxes, or similar fittings shall be permitted to be installed with electric light, power, Class 1, non–power-limited fire alarm, and medium-power network-powered broadband communications circuits where they are introduced solely to connect the equipment connected to Class 4 circuits, and where either of the following applies:

(1) The electric light, power, Class 1, non–power-limited fire alarm, and medium-power network-powered broadband communications circuit conductors are routed to maintain a minimum of 6 mm (0.25 in.) separation from the conductors and cables of Class 4 circuits.

(2) The non–Class 4 circuit conductors operate at 150 volts or less to ground and the Class 4 circuits are installed using Type CL4, Type CL4R, or Type CL4P cables if any CL4 cable conductors extending beyond the jacket are separated by a minimum of 6 mm (0.25 in.) or by a nonconductive sleeve or nonconductive barrier from all other conductors.

(E) Enclosures with Single Openings.

Class 4 circuit conductors entering compartments, enclosures, device boxes, outlet boxes, or similar fittings shall be permitted to be installed with Class 1, non–power-limited fire alarm, and medium-power network-powered broadband communications circuits where they are introduced solely to connect the equipment connected to Class 4 circuits. Where Class 4 circuit conductors must enter an enclosure that is provided with a single opening, they shall be permitted to enter through a single fitting (such as a tee) if the conductors are separated from the conductors of the other circuits by a continuous and firmly fixed nonconductor, such as flexible tubing.

(F) Manholes.

Underground Class 4 circuit conductors in a manhole shall be permitted to be installed with Class 1, non–power-limited fire alarm, and medium-power network-powered broadband communications circuits where one of the following conditions is met:

(1) The electric light, power, Class 1, non–power-limited fire alarm, and medium-power network-powered broadband communications circuit conductors are in a metal-enclosed cable or Type UF cable.

(2) The Class 4 circuit conductors are permanently and effectively separated from the conductors of other circuits by a continuous and firmly fixed nonconductor, such as flexible tubing, in addition to the insulation or covering on the wire.

(3) The Class 4 circuit conductors are permanently and effectively separated from conductors of the other circuits and securely fastened to racks, insulators, or other approved supports.

(G) Cable Trays.

Class 4 circuit conductors shall be permitted to be installed in cable trays where the conductors of the electric light, Class 1, and non–power-limited fire alarm circuits are separated by a solid fixed barrier of a material compatible with the cable tray or where the Class 4 circuits are installed in Type MC cable.

~~**(H)** In Hoistways.~~

~~In hoistways, Class 4 circuit conductors shall be installed in rigid metal conduit, rigid nonmetallic conduit, intermediate metal conduit, liquidtight flexible nonmetallic conduit, or electrical metallic tubing. For elevators or similar equipment, these conductors shall be permitted to be installed in accordance with 620.21.~~

(H) Other Applications.

For other applications, conductors of Class 4 circuits shall be separated by at least 50 mm (2 in.) from conductors of any electric light, power, Class 1, non–power-limited fire alarm, or medium-power network-powered broadband communications circuits unless one of the following conditions is met:

(1) Either all of the electric light, power, Class 1, non–power-limited fire alarm, and medium-power network-powered broadband communications circuit conductors or all of the Class 4 circuit conductors are in a raceway or in metal-sheathed, metal-clad, non–metallic-sheathed, Type TC, or Type UF cables

(2) All of the electric light, power, Class 1, non–power-limited fire alarm, and medium-power network-powered broadband communications circuit conductors are permanently separated from all of the Class 4 circuit conductors by a continuous and firmly fixed nonconductor, such as porcelain tubes or flexible tubing, in addition to the insulation on the conductors

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Committee Statement

Committee Statement: “CL4” is replaced with “Class 4” where not associated with the designation of the cable.

SR-8301-NFPA 70-2021

Second Correlating Revision No. 103-NFPA 70-2022 [Section No. 726.144]

726.144 Ampacity.

The ampacity of Class 4 cables shall comply with 300.15 based on the temperature rating of the Class 4 cable for conductors sized 16 AWG to 6 AWG. For conductors sized 24 AWG to 17 AWG, the Class 4 cable shall be rated for the intended ampacity as evidenced by the marking FMP-XXA, where XX is the maximum allowable ampacity permitted.

Informational Note No. 1: See 722.179(A)(16) for additional Class 4 cable requirements.

Informational Note No. 2: See UL 1400-1, *Outline of Investigation for Fault-Managed Power Systems — Part 1: General Requirements* , and UL 1400-2, *Outline of Fault-Managed Power Systems — Part 2: Requirements for Class 4 Cables* , for information on determining maximum allowable ampacities.

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Committee Statement

Committee Statement: The reference to Class 4 cable requirements is moved to Informational Note No. 1 to a more appropriate location to reflect the guidance it serves. The existing Informational Note is designated at Informational Note No. 2 and revised with the appropriate standards reference.

Second Correlating Revision No. 104-NFPA 70-2022 [Section No. 760.12]

760.10 Hazardous (Classified) Locations.

Cables and equipment shall be permitted to be used in hazardous (classified) locations where specifically permitted by other articles in this *Code* .

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Committee Statement

Committee Statement: The permitted use in Hazardous Classified Locations is moved to 760.10, and is modified to use similar language from 337.10 regarding applications in hazardous locations.

SR-8692-NFPA 70-2021

Second Correlating Revision No. 105-NFPA 70-2022 [Section No. 760.41(B)]

(B) Branch Circuit.

The branch circuit supplying the fire alarm equipment(s) shall supply no other loads. The location of the branch-circuit overcurrent protective device shall be permanently identified at the fire alarm control unit. The circuit disconnecting means shall have red identification, shall be accessible only to qualified personnel, and shall be identified as “FIRE ALARM CIRCUIT.” The red identification shall not damage the overcurrent protective devices or obscure the manufacturer's markings. This branch circuit shall not be supplied through ground-fault circuit interrupters or arc-fault circuit-interrupters.

~~Informational Note: See 210.8(A)(5), Exception, for receptacles in dwelling-unit unfinished basements that supply power for fire alarm systems.~~

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Committee: NEC-AAC

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Committee Statement

Committee Statement: The informational note is deleted because the action taken in SR 7950 by CMP-2 was to remove “fire alarm” in the informational note since 760.41 modifies 210.8(A).

Second Correlating Revision No. 106-NFPA 70-2022 [Section No. 760.121(A)]

Global SCR-124

(A) Power Source.

The power source for a power-limited fire alarm circuit shall be as specified in the following:

Informational Note No. 1: ~~Tables 12(A) and 12(B) in~~See Chapter 9, Tables 12(A) and 12(B), ~~provide~~for the listing requirements for power-limited fire alarm circuit sources.

~~Informational Note No. 2: See 210.8(A)(5), Exception, for receptacles in dwelling-unit unfinished basements that supply power for fire alarm systems.~~

(1) A listed PLFA or Class 3 transformer

(2) A listed PLFA or Class 3 power supply

(3) Listed equipment marked to identify the PLFA power source

Informational Note No. 2: Examples of listed equipment are a fire alarm control panel with integral power source; a circuit card listed for use as a PLFA source, where used as part of a listed assembly; a current-limiting impedance, listed for the purpose or part of a listed product, used in conjunction with a non-power-limited transformer or a stored energy source, for example, storage battery, to limit the output current.

Supplemental Information

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Committee Statement

Committee Statement: Informational Note No. 2 is deleted because the action taken in SR 7950 by CMP-2 was to remove “fire alarm” in the informational note since 760.41 modifies 210.8(A).

Second Correlating Revision No. 109-NFPA 70-2022 [Section No. 770.3]

770.3 Other Articles.

Installations of optical fiber cables shall comply with 770.3(A) through (D). Only those sections of Chapter 2 and Article 300 referenced in this article shall apply to optical fiber cables.

(A) Hazardous (Classified) Locations.

Listed optical fiber cables shall be permitted to be installed in hazardous (classified) locations. The cables shall be sealed in accordance with 501.15, 502.15, 505.16, or 506.16, as applicable.

(B) Cables in Ducts for Dust, Loose Stock, or Vapor Removal.

The requirements of 300.22(A) for wiring systems shall apply to conductive optical fiber cables.

(C) Hybrid Cables.

Hybrid optical fiber cables shall be classified as electrical cables in accordance with the type of electrical conductors. They shall be constructed, listed, and marked in accordance with the appropriate article for each type of electrical cable.

(D) Vertical Support for Fire-Resistive Cables.

Vertical installations of circuit integrity (CI) cables installed in a raceway or cables of fire-resistive cable systems shall be installed in accordance with their listing.

(E) Optical Fiber Cables within Buildings.

The listing and installation of optical fiber cables within buildings shall comply with Part V of this article and Parts I and II of Article 722 .

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Committee Statement

Committee Statement: A new sentence is added to 770.3(F) to provide a reference to and correlate with Article 722.

Second Correlating Revision No. 136-NFPA 70-2022 [Section No. 770.110]

770.110 ~~Raceways, Cable Routing Assemblies, and Cable Trays for Optical Fiber Cables~~ General .

In addition to Part V of this article, Parts I and II of Article 722 shall apply to wiring methods and materials for optical fiber cable used within buildings.

~~**(A)** Types of Raceways.~~

~~Optical fiber cables shall be permitted to be installed in any raceway that complies with either 770.110(A)(1) or (A)(2).~~

~~**(1)** Raceways Recognized in Chapter 3.~~

~~Optical fiber cables shall be permitted to be installed in any raceway included in Chapter 3 . The raceways shall be installed in accordance with Chapter 3 .~~

~~**(2)** Communications Raceways.~~

~~Optical fiber cables shall be permitted to be installed in listed communications raceways selected in accordance with Table 800.154(b) .~~

~~**(3)** Innerduct for Optical Fiber Cables.~~

~~Listed plenum communications raceways, listed riser communications raceways, and listed general-purpose communications raceways selected in accordance with Table 800.154(b) shall be permitted to be installed as innerduct in any type of listed raceway permitted in Chapter 3 .~~

~~**(B)** Raceway Fill for Optical Fiber Cables.~~

~~Raceway fill for optical fiber cables shall comply with either 770.110(B)(1) or (B)(2).~~

~~**(1)** Without Electric Light or Power Conductors.~~

~~Where optical fiber cables are installed in raceway without electric light or power conductors, the raceway fill requirements of Chapters 3 and 9 shall not apply.~~

~~**(2)** Nonconductive Optical Fiber Cables with Electric Light or Power Conductors.~~

~~Where nonconductive optical fiber cables are installed with electric light or power conductors in a raceway, the raceway fill requirements of Chapters 3 and 9 shall apply.~~

~~**(C)** Cable Routing Assemblies.~~

~~Optical fiber cables shall be permitted to be installed in listed cable routing assemblies selected in accordance with Table 800.154(c)~~

~~**(D)** Cable Trays.~~

~~Optical fiber cables shall be permitted to be installed in metal or listed nonmetallic cable tray systems.~~

770.111 Innerduct for Optical Fiber Cables.

Listed plenum communications raceways, listed riser communications raceways, and listed general-purpose communications raceways selected in accordance with Table 800.154(b) shall be permitted to be installed as innerduct in any type of listed raceway permitted in Chapter 3.

Supplemental Information

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NEC_770.110_SCR136.docx	For staff use

Submitter Information Verification

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Committee Statement

Committee Statement: Section 770.110 is deleted except for 770.110(C) to eliminate duplication and correlate with new 722.135. The first sentence in 770.110 is revised and 770.111 is created which now contains the language formerly in 770.110(C).

Second Correlating Revision No. 110-NFPA 70-2022 [Section No. 770.113]

770.113 Installation of Optical Fiber Cables.

Installation of optical fiber cables shall comply with 770.113(A) through (J). Installation of raceways and cable routing assemblies shall comply with 770.110 .

(A) Listing.

Optical fiber cables installed in buildings shall be listed in accordance with 770.179 and installed in accordance with the limitations of the listing.

Exception: Optical fiber cables that are installed in compliance with 770.48 shall not be required to be listed.

(B) Ducts Specifically Fabricated for Environmental Air.

Installations of optical fiber cables in ducts specifically fabricated for environmental air shall be in accordance with 770.113(B)(1) and (B)(2).

(1) Uses Permitted.

The following cables shall be permitted in ducts specifically fabricated for environmental air as described in 300.22(B) if they are directly associated with the air distribution system:

(0) Up to 1.22 m (4 ft) of Types OFNP and OFCP

(0) Types OFNP, OFCP, OFNR, OFCR, OFNG, OFCG, OFN, and OFC installed in raceways that are installed in compliance with 300.22(B)

Informational Note: For information on fire protection of wiring installed in fabricated ducts, see NFPA 90A -2018, *Standard for the Installation of Air-Conditioning and Ventilating Systems* .

(2) Uses Not Permitted.

Types OFNR, OFCR, OFNG, OFCG, OFN, and OFC shall not be permitted to be installed in ducts specifically fabricated for environmental air as described in 300.22(B) .

Informational Note: See NFPA 90A -2021, *Standard for the Installation of Air-Conditioning and Ventilating Systems* , for information on fire protection of wiring installed in fabricated ducts.

(C) Other Spaces Used for Environmental Air (Plenums).

Installations of optical fiber cables in other spaces used for environmental air shall be in accordance with 770.13(C)(1) and (C)(2).

(1) Uses Permitted.

The following cables shall be permitted in other spaces used for environmental air as described in 300.22(C) :

(0) Types OFNP and OFCP

(0) Types OFNP and OFCP installed in plenum communications raceways

(0) Types OFNP and OFCP installed in plenum cable routing assemblies

(0) Types OFNP and OFCP supported by open metal cable tray systems

(0) Types OFNP, OFCP, OFNR, OFCR, OFNG, OFCG, OFN, and OFC installed in raceways that are installed in compliance with 300.22(C)

(0) Types OFNP, OFCP, OFNR, OFCR, OFNG, OFCG, OFN, and OFC supported by solid bottom metal cable trays with solid metal covers in other spaces used for environmental air (plenums), as described in 300.22(C)

(0) Types OFNP, OFCP, OFNR, OFCR, OFNG, OFCG, OFN, and OFC installed in plenum, riser, and general-purpose communications raceways supported by solid bottom metal cable trays with solid metal covers in other spaces used for environmental air (plenums), as described in 300.22(C)

(2) Uses Not Permitted.

Types OFNR, OFCR, OFNG, OFCG, OFN, and OFC shall not be permitted to be installed in other spaces used for environmental air (plenums).

Informational Note: See NFPA 90A -2018, *Standard for the Installation of Air-Conditioning and Ventilating Systems* , for information on fire protection of wiring installed in other spaces used for environmental air.

(D) Risers — Cables in Vertical Runs.

Installations of optical fiber cables in vertical runs shall be in accordance with 770.113(D)(1) and (D)(2).

(1) Uses Permitted.

The following cables shall be permitted in vertical runs penetrating one or more floors and in vertical runs in a shaft:

(0) Types OFNP, OFCP, OFNR, and OFCR

(0) Types OFNP, OFCP, OFNR, and OFCR installed in the following:

0. Plenum communications raceways
0. Plenum cable routing assemblies
0. Riser communications raceways
0. Riser cable routing assemblies

(2) Uses Not Permitted.

Types OFNG, OFCG, OFN, and OFC shall not be permitted to be installed in vertical runs.

Informational Note: See 770.26 for firestop requirements for floor penetrations.

(E) Risers — Cables Permitted in Metal Raceways.

The following cables shall be permitted in metal raceways in a riser having firestops at each floor:

(0) Types OFNP, OFCP, OFNR, OFCR, OFNG, OFCG, OFN, and OFC

(0) Types OFNP, OFCP, OFNR, OFCR, OFNG, OFCG, OFN, and OFC installed in the following:

0. Plenum communications raceways (innerduct)
0. Riser communications raceways (innerduct)
0. General-purpose communications raceways (innerduct)

Informational Note: See 770.26 for firestop requirements for floor penetrations.

(F) Risers — Cables Permitted in Fireproof Shafts.

The following cables shall be permitted to be installed in fireproof riser shafts having firestops at each floor:

(0) Types OFNP, OFCP, OFNR, OFCR, OFNG, OFCG, OFN, and OFC

(0) Types OFNP, OFCP, OFNR, OFCR, OFNG, OFCG, OFN, and OFC installed in the following:

0. Plenum communications raceways
0. Plenum cable routing assemblies
0. Riser communications raceways
0. Riser cable routing assemblies
0. General-purpose communications raceways
0. General-purpose cable routing assemblies

Informational Note: See 770.26 for firestop requirements for floor penetrations.

(G) Risers — Cables Permitted in One- and Two-Family Dwellings.

The following cables shall be permitted in one- and two-family dwellings:

(0) Types OFNP, OFCP, OFNR, OFCR, OFNG, OFCG, OFN, and OFC

(0) Types OFNP, OFCP, OFNR, OFCR, OFNG, OFCG, OFN, and OFC installed in the following:

0. Plenum communications raceways
0. Plenum cable routing assemblies
0. Riser communications raceways
0. Riser cable routing assemblies
0. General-purpose communications raceways
0. General-purpose cable routing assemblies

(H) Cable Trays — Cables Permitted.

The following cables shall be permitted to be supported by cable trays:

(0) Types OFNP, OFCP, OFNR, OFCR, OFNG, OFCG, OFN, and OFC

(0) Types OFNP, OFCP, OFNR, OFCR, OFNG, OFCG, OFN, and OFC installed in the following:

0. Plenum communications raceways
0. Riser communications raceways
0. General-purpose communications raceways

(I) Distributing Frames and Cross-Connect Arrays — Cables Permitted.

The following cables shall be permitted to be installed in distributing frames and cross-connect arrays:

(0) Types OFNP, OFCP, OFNR, OFCR, OFNG, OFCG, OFN, and OFC

(0) Types OFNP, OFCP, OFNR, OFCR, OFNG, OFCG, OFN, and OFC installed in the following:

0. Plenum communications raceways
0. Plenum cable routing assemblies
0. Riser communications raceways
0. Riser cable routing assemblies
0. General-purpose communications raceways
0. General-purpose cable routing assemblies

(J) Other Building Locations — Cables Permitted.

The following cables shall be permitted to be installed in building locations other than the locations covered in 770.113(B) through (I):

(0) Types OFNP, OFCP, OFNR, OFCR, OFNG, OFCG, OFN, and OFC

(0) Types OFNP, OFCP, OFNR, OFCR, OFNG, OFCG, OFN, and OFC installed in the following:

0. Plenum communications raceways
0. Plenum cable routing assemblies
0. Riser communications raceways
0. Riser cable routing assemblies
0. General-purpose communications raceways
0. General-purpose cable routing assemblies

(0) Types OFNP, OFCP, OFNR, OFCR, OFNG, OFCG, OFN, and OFC installed in a raceway of a type recognized in Chapter 3

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Committee Statement

Committee Statement: Section 770.113 is deleted to eliminate duplication and to correlate with new 722.135(A).

SR-7914-NFPA 70-2021

SR-7913-NFPA 70-2021

SR-7911-NFPA 70-2021

Second Correlating Revision No. 135-NFPA 70-2022 [Section No. 770.154]

~~**770.154** Applications of Listed Optical Fiber Cables.~~

Permitted and nonpermitted applications of listed optical fiber cables shall be as indicated in Table 770.154(a) . The permitted applications shall be subject to the installation requirements of 770.110 and 770.113 . The substitutions for optical fiber cables in Table 770.154(b) and illustrated in Figure 770.154 shall be permitted.

Table 770.154(a) Applications of Listed Optical Fiber Cables in Buildings

-	-	Listed Optical Fiber Cable Type		
Applications		OFNP, OFCP	OFNR, OFCR	OFNG, OFCG, OFN, OFC
In ducts specifically fabricated for environmental air as described in 300.22(B)	In fabricated ducts	Y*	N	N
	In metal raceway that complies with 300.22(B)	Y*	Y*	Y*
In other spaces used for environmental air (plenums) as described in 300.22(C)	In other spaces used for environmental air	Y*	N	N
	In metal raceway that complies with 300.22(C)	Y*	Y*	Y*
	In plenum communications raceways	Y*	N	N
	In plenum cable routing assemblies	Y*	N	N
	Supported by open metal cable trays	Y*	N	N
	Supported by solid bottom metal cable trays with solid metal covers	Y*	Y*	Y*
In risers	In vertical runs	Y*	Y*	N
	In metal raceways	Y*	Y*	Y*
	In fireproof shafts	Y*	Y*	Y*
	In plenum communications raceways	Y*	Y*	N
	In plenum cable routing assemblies	Y*	Y*	N
	In riser communications raceways	Y*	Y*	N
	In riser cable routing assemblies	Y*	Y*	N
	In one- and two-family dwellings	Y*	Y*	Y*
Within buildings in other than air-handling spaces and risers	General	Y*	Y*	Y*
	Supported by cable trays	Y*	Y*	Y*
	In distributing frames and cross-connect arrays	Y*	Y*	Y*
	In any raceway recognized in Chapter 3	Y*	Y*	Y*
	In plenum communications raceways	Y*	Y*	Y*

-	-	Listed Optical Fiber Cable Type		
Applications		OFNP, OFCP	OFNR, OFCR	OFNG, OFCG, OFN, OFC
	In plenum cable routing assemblies	Y*	Y*	Y*
	In riser communications raceways	Y*	Y*	Y*
	In riser cable routing assemblies	Y*	Y*	Y*
	In general-purpose communications raceways	Y*	Y*	Y*
	In general-purpose cable routing assemblies	Y*	Y*	Y*

Note: "N" indicates that the cable type shall not be permitted to be installed in the application. "Y*" indicates that the cable type shall be permitted to be installed in the application subject to the limitations described in 770.110 and 770.113.

Informational Note No. 1: Part V of Article 770 covers installation methods within buildings. This table covers the applications of listed optical fiber cables in buildings. The definition of *Point of Entrance* is in 770.2.

Informational Note No. 2: For information on the restrictions to the installation of optical fiber cables in ducts specifically fabricated for environmental air, see 770.113(B).

Table 770.154(b) Cable Substitutions

Cable Type	-	Permitted Substitutions
OFNP	-	None
OFCP	-	OFNP
OFNR	-	OFNP
OFCR	-	OFNP, OFCP, OFNR
OFNG, OFN	-	OFNP, OFNR
OFCG, OFC	-	OFNP, OFCP, OFNR, OFCR, OFNG, OFN

Figure 770.154 Cable Substitution Hierarchy.

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Committee Statement

Committee Statement: Section 770.154 is deleted to eliminate duplication and correlate with new 722.135(B).

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Second Correlating Revision No. 111-NFPA 70-2022 [Section No. 770.179]

770.179 Optical Fiber Cables.

Optical fiber cables shall be listed and identified in accordance with ~~770.179(A)~~ 722.179. ~~through (G) and shall be marked in accordance with Table 770.179 . Optical fiber cables shall have a temperature rating of not less than 60°C (140°F). The temperature rating shall be marked on the jacket of optical fiber cables that have a temperature rating exceeding 60°C (140°F).~~

~~Informational Note: See UL 1651-2015, *Standard for Optical Fiber Cable* , for information on optical fiber cables.~~

~~Table 770.179 Cable Markings~~

~~Cable Marking~~	~~Type~~
~~OFNP~~	~~Nonconductive optical fiber plenum cable~~
~~OFCP~~	~~Conductive optical fiber plenum cable~~
~~OFNR~~	~~Nonconductive optical fiber riser cable~~
~~OFCR~~	~~Conductive optical fiber riser cable~~
~~OFNG~~	~~Nonconductive optical fiber general-purpose cable~~
~~OFCG~~	~~Conductive optical fiber general-purpose cable~~
~~OFN~~	~~Nonconductive optical fiber general-purpose cable~~
~~OFC~~	~~Conductive optical fiber general-purpose cable~~

~~**(A)** Types OFNP and OFCP.~~

~~Types OFNP and OFCP nonconductive and conductive optical fiber plenum cables shall be suitable for use in ducts, plenums, and other space used for environmental air and shall also have adequate fire-resistant and low-smoke-producing characteristics.~~

~~Informational Note: See NFPA 262-2019, *Standard Method of Test for Flame Travel and Smoke of Wires and Cables for Use in Air-Handling Spaces* , for one method of defining that a cable has adequate fire-resistant and low-smoke-producing characteristics where the cable exhibits a maximum peak optical density of 0.50 or less, an average optical density of 0.15 or less, and a maximum flame spread distance of 1.52 m (5 ft) or less.~~

~~**(B)** Types OFNR and OFCR.~~

~~Types OFNR and OFCR nonconductive and conductive optical fiber riser cables shall be suitable for use in a vertical run in a shaft or from floor to floor and shall also have the fire-resistant characteristics capable of preventing the carrying of fire from floor to floor.~~

~~Informational Note: See ANSI/UL 1666-2017, *Standard Test for Flame Propagation Height of Electrical and Optical-Fiber Cable Installed Vertically in Shafts* , for one method of defining fire-resistant characteristics capable of preventing the carrying of fire from floor to floor.~~

(C) Types OFNG and OFCG.

Types OFNG and OFCG nonconductive and conductive general-purpose optical fiber cables shall be suitable for general-purpose use, with the exception of risers and plenums, and shall also be resistant to the spread of fire.

Informational Note No 1: See CSA Vertical Flame Test — Cables in Cable Trays, as described in CSA C22.2 No. 0.3-2009 (R2019), *Test Methods for Electrical Wires and Cables*, for one method of defining *resistant to the spread of fire* for the damage (char length) not to exceed 1.5 m (4 ft 11 in.) when performing the test.

Informational Note No. 2: See ANSI/UL 1685-2015, *Standard for Safety for Vertical-Tray Fire-Propagation and Smoke-Release Test for Electrical and Optical-Fiber Cables*, for another method of defining resistant to the spread of fire where the cables do not spread fire to the top of the tray in the UL flame exposure, vertical tray flame test. The smoke measurements in the test method are not applicable.

(D) Types OFN and OFC.

Types OFN and OFC nonconductive and conductive optical fiber cables shall be suitable for general-purpose use, with the exception of risers, plenums, and other spaces used for environmental air, and shall also be resistant to the spread of fire.

Informational Note No. 1: See ANSI/UL 1685-2015, *Standard for Safety for Vertical-Tray Fire-Propagation and Smoke-Release Test for Electrical and Optical-Fiber Cables*, for one method of defining resistant to the spread of fire where the cables do not spread fire to the top of the tray in the UL flame exposure, vertical tray flame test. The smoke measurements in the test method are not applicable.

Informational Note No. 2: See CSA Vertical Flame Test — Cables in Cables Trays, as described in CSA C22.2 No. 0.3-2009 (R2019), *Test Methods for Electrical Wires and Cables*, for another method of defining *resistant to the spread of fire* where the damage (char length) does not exceed 1.5 m (4 ft 11 in.).

Informational Note No. 3: Cable types are listed in descending order of fire resistance rating. Within each fire resistance rating, nonconductive cable is listed first because it is often substituted for conductive cable.

(E) Circuit Integrity (CI), Fire-Resistive Cable System, or Electrical Circuit Protective System.

Cables that are used for survivability of critical circuits under fire conditions shall meet either 770.179(E)(1), (E)(2), or (E)(3).

(1) Circuit Integrity (CI) Cables.

Cables specified in 770.179(A) through (D), and used for survivability of critical circuits, shall be marked with the additional classification using the suffix "CI." In order to maintain its listed fire rating, CI cable shall only be installed in free air in accordance with 770.24. CI cables shall only be permitted to be installed in a raceway where specifically listed and marked as part of a fire-resistive cable system as covered in 770.179(E)(2).

Informational Note: See UL 2196, *Standard for Fire Test for Circuit Integrity of Fire-Resistive Power, Instrumentation, Control and Data Cables*, for one method of defining CI cable for establishing a minimum 2-hour fire resistance rating for the cable as specified in UL 1651, *Optical Fiber Cable*. UL *Guide Information for Optical Cable Fiber (QAYK)* contains information to identify the cable and its installation limitations to maintain the fire-resistive rating.

~~**(2)** Fire-Resistive Cables.~~

~~Cables specified in 770.179(A) through (D) and 770.179(E)(1) that are part of an electrical circuit protective system shall be fire-resistive cable and identified with the protective system number on the product or on the smallest unit container in which the product is packaged and installed in accordance with the listing of the protective system.~~

~~Informational Note: See UL 2196, *Standard for Fire Test for Circuit Integrity of Fire-Resistive Power, Instrumentation, Control and Data Cables*, for one method of defining an electrical circuit protective system for establishing a rating for the system. UL *Guide Information for Electrical Circuit Integrity Systems (FHIT)* contains information to identify the system and its installation limitations to maintain a minimum fire-resistive rating.~~

~~**(F)** Field-Assembled Optical Fiber Cables.~~

~~Field-assembled optical fiber cable shall comply with the following:~~

(0) ~~The specific combination of jacket and optical fibers intended to be installed as a field-assembled optical fiber cable shall be one of the types in 770.179(A), (B), or (D) and shall be marked in accordance with Table 770.179 .~~

(0) ~~The jacket of a field-assembled optical fiber cable shall have a surface marking indicating the specific optical fibers with which it is identified for use.~~

(0) ~~The optical fibers shall have a permanent marking, such as a marker tape, indicating the jacket with which they are identified for use.~~

(0) ~~The jacket without fibers shall meet the listing requirements for communications raceways in 800.182(A), (B), or (C) in accordance with the cable marking.~~

~~**(G)** Optional Markings.~~

~~Cables shall be permitted to be surface marked to indicate special characteristics of the cable materials.~~

~~Informational Note: These markings can include, but are not limited to, markings for limited-smoke, halogen-free, low-smoke halogen-free, and sunlight resistance.~~

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Thu Feb 10 10:06:18 EST 2022

Committee Statement

Committee Statement: Section 770.179 (Part VI) is deleted except for the first sentence as a reference to 722.179 to eliminate duplication and correlate with new 722.179.

SR-7973-NFPA 70-2021

Second Correlating Revision No. 163-NFPA 70-2022 [Section No. 800.110(A) [Excluding any Sub-Sections]]

Wires and cables shall be permitted to be installed in raceways that comply with ~~either~~ 800.110(A)(1) ~~or (A)(2)~~ , 800.110(A)(2) , or 800.110(A)(3) . Medium-power network-powered broadband communications cables shall not be ~~permitted to be~~ installed in raceways that comply with 800.110(A)(2).

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue Feb 15 21:17:41 EST 2022

Committee Statement

Committee Statement: The action corrects the absence of a reference to (A)(3) in the lead-in statement.

Second Revision No. 7924-NFPA 70-2021 [Section No. 800.110(A) [Excluding any Sub-Sections]]

Second Correlating Revision No. 107-NFPA 70-2022 [Section No. 800.154]

800.154 Applications of Listed Communications Wires, Cables, and Raceways, and Listed Cable Routing Assemblies.

Permitted and nonpermitted applications of listed communications wires, cables, coaxial cables, network-powered broadband communications system cables and raceways, and listed cable routing assemblies, shall be in accordance with one of the following:

(1) Listed communications wires and cables as indicated in Table 800.154(a)

(2) Listed communications raceways as indicated in Table 800.154(b)

(3) Listed cable routing assemblies as indicated in Table 800.154(c)

The permitted applications shall be subject to the installation requirements of 800.110 and 800.113.

Table 800.154(a) Applications of Listed Communications Wires, Cables, and Network-Powered Broadband Communications System Cables in Buildings

Applications		Wire and Cable Type							
		Plenum	Riser	BMR	General-Purpose	BM	Limited-Use	Undercarpet	BM BL
In ducts specifically fabricated for environmental air as described in 300.22(B)	In fabricated ducts	Y	N	N	N	N	N	N	N
	In metal raceway that complies with 300.22(B)	Y	Y	Y	Y	Y	Y	N	N
In other spaces used for environmental air (plenums) as described in 300.22(C)	In other spaces used for environmental air	Y	N	N	N	N	N	N	N
	In metal raceway that complies with 300.22(C)	Y	Y	Y	Y	Y	Y	N	N
	In plenum communications raceways	Y	N	N	N	N	N	N	N
	In plenum cable routing assemblies	Y	N	N	N	N	N	N	N
	Supported by open metal cable trays	Y	N	N	N	N	N	N	N
	Supported by solid bottom metal cable trays with solid metal covers	Y	Y	Y	Y	Y	Y	N	N
In risers	In vertical runs	Y	Y	Y	N	N	N	N	N
	In metal raceways	Y	Y	Y	Y	Y	Y	N	N
	In fireproof shafts	Y	Y	Y	Y	Y	Y	N	N

Applications		Wire and Cable Type							
		Plenum	Riser	BMR	General-Purpose	BM	Limited-Use	Undercarpet	BM BL
	In plenum communications raceways	Y	Y	N	N	N	N	N	N
	In plenum cable routing assemblies	Y	Y	N	N	N	N	N	N
	In riser communications raceways	Y	Y	N	N	N	N	N	N
	In riser cable routing assemblies	Y	Y	N	N	N	N	N	N
	In one- and two-family dwellings	Y	Y	Y	Y	Y	Y	N	N
Within buildings in other than air-handling spaces and risers	General	Y	Y	Y	Y	Y	Y	N	N
	In one- and two-family dwellings	Y	Y	Y	Y	Y	Y	Y	N
	In multifamily dwellings	Y	Y	Y	Y	Y	Y	Y	N
	In nonconcealed spaces	Y	Y	Y	Y	Y	Y	Y	N
	Supported by cable trays	Y	Y	Y	Y	Y	N	N	N
	Under carpet, modular flooring, and planks	N	N	N	N	N	N	Y	N
	In distributing frames and cross-connect arrays	Y	Y	N	Y	N	N	N	N
	In rigid metal conduit (RMC) and intermediate metal conduit (IMC)	Y	Y	Y	Y	Y	Y	Y	Y
	In any raceway recognized in Chapter 3	Y	Y	Y	Y	Y	Y	N	N
	In plenum communications raceways	Y	Y	N	Y	N	N	N	N
	In plenum cable routing assemblies	Y	Y	N	Y	N	N	N	N

Applications	Wire and Cable Type							
	Plenum	Riser	BMR	General-Purpose	BM	Limited-Use	Undercarpet	BM BL
In riser communications raceways	Y	Y	N	Y	N	N	N	N
In riser cable routing assemblies	Y	Y	N	Y	N	N	N	N
In general-purpose communications raceways	Y	Y	N	Y	N	N	N	N
In general-purpose cable routing assemblies	Y	Y	N	Y	N	N	N	N

Note: An “N” in the table indicates that the cable type shall not be ~~permitted to be~~ installed in the application. A “Y” indicates that the cable type shall be permitted to be installed in the application subject to the limitations described in 800.113. The Riser column includes all riser cables except BMR, and the General-Purpose column includes all general-purpose cables except BM.

Informational Note No. 1: Part IV of Article 800 covers installation methods within buildings. This table covers the applications of listed communications wires, cables, and raceways in buildings. ~~See the definition of *Point of Entrance* in 800.2.~~

Informational Note No. 2: For information on the restrictions to the installation of communications cables in fabricated ducts, see 800.113(B).

Table 800.154(b) Applications of Listed Communications Raceways in Buildings

Applications		Listed Communications Raceway Type		
		Plenum	Riser	General-Purpose
In ducts specifically fabricated for environmental air as described in 300.22(B)	In fabricated ducts	N	N	N
	In metal raceway that complies with 300.22(B)	N	N	N
In other spaces used for environmental air (plenums) as described in 300.22(C)	In other spaces used for environmental air	Y	N	N
	In metal raceway that complies with 300.22(C)	Y	Y	Y
	In plenum cable routing assemblies	N	N	N
	Supported by open metal cable trays	Y	N	N
	Supported by solid bottom metal cable trays with solid metal covers	Y	Y	Y
In risers	In vertical runs	Y	Y	N
	In metal raceways	Y	Y	Y

Applications		Listed Communications Raceway Type		
		Plenum	Riser	General-Purpose
	In fireproof shafts	Y	Y	Y
	In plenum cable routing assemblies	N	N	N
	In riser cable routing assemblies	N	N	N
	In one- and two-family dwellings	Y	Y	Y
Within buildings in other than air-handling spaces and risers	General	Y	Y	Y
	In one- and two-family dwellings	Y	Y	Y
	In multifamily dwellings	Y	Y	Y
	In nonconcealed spaces	Y	Y	Y
	Supported by cable trays	Y	Y	Y
	Under carpet, modular flooring, and planks	N	N	N
	In distributing frames and cross-connect arrays	Y	Y	Y
	In any raceway recognized in Chapter 3	Y	Y	Y
	In plenum cable routing assemblies	N	N	N
	In riser cable routing assemblies	N	N	N
	In general-purpose cable routing assemblies	N	N	N

Note: An “N” in the table indicates that the communications raceway type shall not be ~~permitted to be~~ installed in the application. A “Y” indicates that the communications raceway type shall be permitted to be installed in the application, subject to the limitations described in 800.110 and 800.113.

Table 800.154(c) Applications of Listed Cable Routing Assemblies in Buildings

Applications		Listed Cable Routing Assembly Type		
		Plenum	Riser	General-Purpose
In ducts specifically fabricated for environmental air as described in 300.22(B)	In fabricated ducts	N	N	N
	In metal raceway that complies with 300.22(B)	N	N	N
In other spaces used for environmental air (plenums) as described in 300.22(C)	In other spaces used for environmental air	Y	N	N
	In metal raceway that complies with 300.22(C)	N	N	N
	In plenum communications raceways	N	N	N

Applications		Listed Cable Routing Assembly Type		
		Plenum	Riser	General-Purpose
	Supported by open metal cable trays	Y	N	N
	Supported by solid bottom metal cable trays with solid metal covers	N	N	N
In risers	In vertical runs	Y	Y	N
	In metal raceways	N	N	N
	In fireproof shafts	Y	Y	Y
	In plenum communications raceways	N	N	N
	In riser communications raceways	N	N	N
	In one- and two-family dwellings	Y	Y	Y
Within buildings in other than air-handling spaces and risers	General	Y	Y	Y
	In one- and two-family dwellings	Y	Y	Y
	In multifamily dwellings	Y	Y	Y
	In nonconcealed spaces	Y	Y	Y
	Supported by cable trays	Y	Y	Y
	Under carpet, modular flooring, and planks	N	N	N
	In distributing frames and cross-connect arrays	Y	Y	Y
	In any raceway recognized in Chapter 3	N	N	N
	In plenum communications raceways	N	N	N
	In riser communications raceways	N	N	N
	In general-purpose communications raceways	N	N	N

Note: An “N” in the table indicates that the cable routing assembly type shall not be ~~permitted to be~~ installed in the application. A “Y” indicates that the cable routing assembly type shall be permitted to be installed in the application subject to the limitations described in 800.113.

Submitter Information Verification

Committee: NEC-AAC
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Committee Statement

Committee Statement: Remove “See the definition of Point of Entrance in Article 100.” from the informational note in Table 800.154(a). Section 800.1 already establishes the definitions in Article 100

apply to this article, therefore the last sentence is removed. This revision is made to comply with the NEC Style Manual 4.1.1, as general requirements contained in Chapters 1 through 4 shall not be repeated in other articles of the document.

SR-7927-NFPA 70-2021

Second Correlating Revision No. 96-NFPA 70-2022 [Annex A]

Informative Annex A Product Safety Standards

Informative Annex A is not a part of the requirements of this NFPA document but is included for informational purposes only.

This informative annex provides a list of product safety standards used for product listing where that listing is required by this *Code*. It is recognized that this list is current at the time of publication but that new standards or modifications to existing standards can occur at any time while this edition of the *Code* is in effect.

This informative annex does not form a mandatory part of the requirements of this *Code* but is intended to identify for the *Code* users the standards upon which *Code* requirements have been based.

A.1

Table A.1(a) Product Safety Standards for Conductors and Equipment That Have an Associated Listing Requirement

Article	Standard Number	Standard Title
110	UL 10C	Positive Pressure Fire Tests of Door Assemblies
	UL 305	Panic Hardware
	UL 486D	Sealed Wire Connector Systems
	UL 2043	Fire Test for Heat and Visible Smoke Release for Discrete Products and Their Accessories Installed in Air-Handling Spaces
	UL 62275	Cable Management Systems — Cable Ties for Electrical Installation
210	UL 498	Attachment Plugs and Receptacles
	UL 935	Fluorescent-Lamp Ballasts
	UL 943	Ground Fault Circuit Interrupters
	UL 1029	High-Intensity-Discharge Lamp Ballast
	UL 1699	Arc-Fault Circuit-Interrupters
	UL 1699A	Outlet Branch Circuit AFCIs
225	UL 6	Electrical Rigid Metal Conduit — Steel
	UL 6A	Electrical Rigid Metal Conduit — Aluminum, Red Brass and Stainless Steel
	UL 360	Liquid-Tight Flexible Metal Conduit
	UL 651	Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings
	UL 1242	Electrical Intermediate Metal Conduit — Steel
	UL 1660	Liquid-Tight Flexible Nonmetallic Conduit
	UL 2515	Aboveground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
230	UL 6	Electrical Rigid Metal Conduit — Steel
	UL 6A	Electrical Rigid Metal Conduit — Aluminum, Red Brass and Stainless Steel
	UL 67	Panelboards
	UL 98	Enclosed and Dead-Front Switches
	UL 218	Fire Pump Controllers
	UL 231	Power Outlets
	UL 347	Medium-Voltage AC Contactors, Controllers, and Control Centers
	UL 360	Liquid-Tight Flexible Metal Conduit
	UL 414	Meter Sockets
	UL 486A-486B	Wire Connectors
	UL 486C	Splicing Wire Connectors
	UL 489	Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures
	UL 508	Industrial Control Equipment
	UL 508A	Industrial Control Panels
	UL 514B	Conduit, Tubing and Cable Fittings

Article	Standard Number	Standard Title
	UL 651	Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings
	UL 845	Motor Control Centers
	UL 857	Busways
	UL 869A	Reference Standard for Service Equipment
	UL 891	Switchboards
	~~UL 891A~~	~~Switchboards Rated 601–1000 V~~
	UL 977	Fused Power-Circuit Devices
	UL 1008	Transfer Switch Equipment
	UL 1008A	Transfer Switch Equipment, Over 1000 Volts
	UL 1008M	Meter-Mounted Transfer Switches
	UL 1008S	Solid-State Transfer Switches
	UL 1053	Ground-Fault Sensing and Relaying Equipment
	UL 1062	Unit Substations
	UL 1066	Low-Voltage AC and DC Power Circuit Breakers Used in Enclosures
	UL 1242	Electrical Intermediate Metal Conduit — Steel
	UL 1429	Pullout Switches
	UL 1449	Surge Protective Devices
	UL 1558	Metal-Enclosed Low-Voltage Power Circuit Breaker Switchgear
	UL 1660	Liquid-Tight Flexible Nonmetallic Conduit
	UL 1740	Robots and Robotic Equipment
	UL 1953	~~Outline for~~ Power Distribution Blocks
	UL 2011	~~Outline for~~ Machinery
	UL 2200	Stationary Engine Generator Assemblies
	UL 2416	Audio/Video, Information and Communication Technology Equipment Cabinet, Enclosure and Rack Systems
	UL 2446	~~Outline for~~ Unitary Boiler Room Systems
	UL 2565	Industrial Metalworking and Woodworking Machine Tools
	UL 2735	Electric Utility Meters
	UL 2745	~~Outline for~~ Meter Socket Adapters for Communications Equipment
	UL 2876	~~Outline for~~ Remote Racking Devices for Switchgear and Controlgear
	UL 4248-1	Fuseholders — Part 1: General Requirements
	UL 60947-1	Low-Voltage Switchgear and Controlgear — Part 1: General Rules
	UL 61800-5-1	Adjustable Speed Electrical Power Drive Systems — Part 5-1: Safety Requirements — Electrical, Thermal and Energy
240	UL 248-1	Low-Voltage Fuses — Part 1: General Requirements
	UL 248-2	Low-Voltage Fuses — Part 2: Class C Fuses
	UL 248-3	Low-Voltage Fuses — Part 2: Class CA and CB Fuses
	UL 248-4	Low-Voltage Fuses — Part 4: Class CC Fuses
	UL 248-5	Low-Voltage Fuses — Part 5: Class G Fuses
	UL 248-6	Low-Voltage Fuses — Part 6: Class H Non-Renewable Fuses

Article	Standard Number	Standard Title
	UL 248-8	Low-Voltage Fuses — Part 8: Class J Fuses
	UL 248-9	Low-Voltage Fuses — Part 9: Class K Fuses
	UL 248-10	Low-Voltage Fuses — Part 10: Class L Fuses
	UL 248-11	Low-Voltage Fuses — Part 11: Plug Fuses
	UL 248-12	Low-Voltage Fuses — Part 12: Class R Fuses
	UL 248-15	Low-Voltage Fuses — Part 15: Class T Fuses
	UL 248-17	Low-Voltage Fuses — Part 17: Class CF Fuses
	UL 248-18	Low-Voltage Fuses — Part 18: Class CD Fuses
	UL 489	Molded-Case Circuit Breakers, Molded-Case Switches, and Circuit-Breaker Enclosures
	UL 489I	Solid State Molded-Case Circuit Breakers
	UL 943	Ground-Fault Circuit-Interrupters
	UL 1053	Ground-Fault Sensing and Relaying Equipment
	UL 1066	Low-Voltage AC and DC Power Circuit Breakers Used in Enclosures
	UL 4248-1	Fuseholders — Part 1: General Requirements
242	UL 1449	Surge Protective Devices
250	UL 1	Flexible Metal Conduit
	UL 4	Armored Cable
	UL 5	Surface Metal Raceways and Fittings
	UL 6	Electrical Rigid Metal Conduit — Steel
	UL 6A	Electrical Rigid Metal Conduit — Aluminum, Red Brass and Stainless Steel
	UL 360	Liquid-Tight Flexible Metal Conduit
	UL 467	Grounding and Bonding Equipment
	UL 486A-486B	Wire Connectors
	UL 486C	Splicing Wire Connectors
	UL 486D	Sealed Wire Connector Systems
	UL 498	Attachment Plugs and Receptacles
	UL 504	Mineral-Insulated, Metal-Sheathed Cable
	UL 514A	Metallic Outlet Boxes
	UL 514B	Conduit, Tubing, and Cable Fittings
	UL 797	Electrical Metallic Tubing — Steel
	UL 797A	Electrical Metallic Tubing — Aluminum
	UL 1242	Electrical Intermediate Metal Conduit — Steel
	UL 1569	Metal-Clad Cables
	UL 1652	Flexible Metallic Tubing
300	UL 4	Armored Cable
	UL 44	Thermoset-Insulated Wires and Cables
	UL 83	Thermoplastic-Insulated Wires and Cables
	UL 83A	Fluoropolymer Insulated Wire
	UL 263	Fire Tests of Building Construction and Materials
	UL 504	Mineral-Insulated, Metal-Sheathed Cable
	UL ~~756C~~ 746C	Polymeric Materials — Use in Electrical Equipment Evaluations

Article	Standard Number	Standard Title
	UL 1569	Metal-Clad Cable
	UL 1581	Reference Standard for Electrical Wires, Cables, and Flexible Cords
	UL 2239	Hardware for Support of Conduit, Tubing and Cable
	UL 2556	~~Standard for~~ Wire and Cable Test Methods
	UL 62275	Cable Management Systems — Cable Ties for Electrical Installation
310	UL 44	Thermoset-Insulated Wires and Cables
	UL 83	Thermoplastic-Insulated Wires and Cables
	UL 83A	Fluoropolymer Insulated Wire
	UL 224	Extruded Insulating Tubing
	UL 1063	Machine-Tool Wires and Cables
	UL 1441	Coated Electrical Sleeving
~~311~~ 315	ANSI C119.4	Electric Connectors — Connectors for Use between Aluminum-to-Aluminum and Aluminum-to-Copper Conductors Designed for Normal Operation at or Below 93ºC and Copper-to-Copper Conductors Designed for Normal Operation at or Below 100ºC
	IEEE 48	IEEE Standard for Test Procedures and Requirements for Alternating-Current Cable Terminations Used on Shielded Cables Having Laminated Insulation Rated 2.5 kV through 765 kV or Extruded Insulation Rated 2.5 kV through 500 kV
	IEEE 386	IEEE Standard for Separable Insulated Connector Systems for Power Distribution Systems Rated 2.5 kV through 35 kV
	IEEE 404	IEEE Standard for Extruded and Laminated Dielectric Shielded Cable Joints Rated 2.5 kV to 500 kV
	UL 4	Armored Cable
	UL 504	Mineral-Insulated, Metal-Sheathed Cable
	UL 1072	Medium Voltage Power Cables
	UL 1569	Metal-Clad Cable
312	UL 50	Enclosures for Electrical Equipment
	UL 50E	Enclosures for Electrical Equipment, Environmental Considerations
	UL 514C	Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
	UL 916	Energy Management Equipment
	UL 2808	Energy Monitoring Equipment
	UL 61010-1 and UL 61010-2-030	Electrical Equipment for Measurement, Control, and Laboratory Use — Part 2-030: Particular Requirements for Testing and Measuring Circuits
314	UL 50	Enclosures for Electrical Equipment
	UL 50E	Enclosures for Electrical Equipment, Environmental Considerations
	UL 486D	Sealed Wire Connector Systems
	UL 498	Attachment Plugs and Receptacles
	UL 498B	~~Outline for~~ Receptacles with Integral Switching Means
	UL 498D	Attachment Plugs, Cord Connectors and Receptacles with Arcuate (Locking Type) Contacts

Article	Standard Number	Standard Title
	UL 498E	Attachment Plugs, Cord Connectors and Receptacles — Enclosure Types for Environmental Protection
	UL 514A	Metallic Outlet Boxes
	UL 514B	Conduit, Tubing, and Cable Fittings
	UL 514C	Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
	UL 514D	Cover Plates for Flush-Mounted Wiring Devices
	UL 1953	Power Distribution Blocks
320	UL 4	Armored Cable
	UL 44	Thermoset-Insulated Wires and Cables
	UL 83	Thermoplastic-Insulated Wires and Cables
	UL 83A	Fluoropolymer Insulated Wire
	UL 514B	Conduit, Tubing, and Cable Fittings
	UL 514C	Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
	UL 1063	Machine-Tool Wires and Cables
	UL 1565	Positioning Devices
	UL 2239	Hardware for the Support of Conduit, Tubing, and Cable
~~322~~	~~NEMA Publication No. UC2~~	~~Under-carpet Power Distribution Systems~~
322	UL 486A-486B	Wire Connectors
	UL 498	Attachment Plugs and Receptacles
	UL 514A	Metallic Outlet Boxes
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	UL 2225	Cables and Cable-Fittings For Use In Hazardous (Classified) Locations
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360	UL 514B	Conduit, Tubing, and Cable Fittings
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427	IEEE 515	~~Electrical Resistance Heat Tracing for Industrial Applications~~ Testing, Design, Installation and Maintenance of Electrical Resistance Trace Heating for Industrial Applications
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	UL 60745-2-2	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 2-2: Particular Requirements For Screwdrivers And Impact Wrenches
	UL 60745-2-3	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 2-3: Particular Requirements For Hand-Held Grinders, Polishers, and Disk-Type Sanders
	UL 60745-2-4	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 2-4: Particular Requirements For Hand-Held Sanders And Polishers Other Than Disc Type
	UL 60745-2-5	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 2-5: Particular Requirements For Hand-Held Circular Saws
	UL 60745-2-8	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 2-8: Particular Requirements For Hand-Held Shears and Nibblers
	UL 60947-1	Low-Voltage Switchgear and Controlgear — Part 1: General Rules
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	UL 60947-5-1	Low-Voltage Switchgear and Controlgear — Part 5-1: Control Circuit Devices and Switching Elements — Electromechanical Control Circuit Devices

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	UL 60947-5-2	Low-Voltage Switchgear and Controlgear — Part 5-2: Control Circuit Devices and Switching Elements — Proximity Switches
	UL 61800-5-1	Adjustable Speed Electrical Power Drive Systems — Part 5-1: Safety Requirements — Electrical, Thermal and Energy
	UL 62841-2-9	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 2-9: Particular Requirements For Hand-Held Tappers And Threaders
	UL 62841-2-10	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 2-10: Particular Requirements For Hand-Held Mixers
	UL 62841-2-11	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 2-11: Particular Requirements for Hand-Held Reciprocating Saws
	UL 62841-2-14	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 2-14: Particular Requirements For Hand-Held Planers
	UL 62841-2-17	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 2-17: Particular Requirements For Hand-Held Routers
	UL 62841-2-21	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 2-21: Particular Requirements For Hand-Held Drain Cleaners
	UL 62841-3-1	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 3-1: Particular Requirements For Transportable Table Saws
	UL 62841-3-4	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 3-4: Particular Requirements for Transportable Bench Grinders
	UL 62841-3-6	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 3-6: Particular Requirements For Transportable Diamond Drills with Liquid System
	UL 62841-3-9	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 3-9: Particular Requirements For Transportable Mitre Saws
	UL 62841-3-10	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 3-10: Particular requirements for Transportable Cut-Off Machines
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	UL 62841-3-13	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 3-13: Particular Requirements For Transportable Drills
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	UL 62841-3-1000	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 3-1000: Particular Requirements for Transportable Laser Engravers

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	UL 62841-4-2	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 4-2: Particular Requirements for Hedge Trimmers
	UL 62841-4-1000	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 4-1000: Particular Requirements For Utility Machines
440	UL 98	Enclosed and Dead-Front Switches
~~440~~	UL 416	Refrigerated Medical Equipment
	UL 484	Room Air Conditioners
	UL 489	Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures
	UL 508	Industrial Control Equipment
	UL 541	Refrigerated Vending Machines
	UL 563	Ice Makers
	UL 1429	Pullout Switches
	UL 1995	Heating and Cooling Equipment
	UL 60335-2-24	Household and Similar Electrical Appliances, Part 2: Particular Requirements for Refrigerating Appliances, Ice-Cream Appliances and Ice-Makers
	UL 60335-2-40	Household and Similar Electrical Appliances, Part 2: Particular Requirements for Electrical Heat Pumps, Air-Conditioners and Dehumidifiers
	UL 60335-2-89	Household and Similar Electrical Appliances — Safety — Part 2-89: Particular Requirements for Commercial Refrigerating Appliances with an Incorporated or Remote Refrigerant Unit or Compressor
	UL 60947-4-1	Low-Voltage Switchgear and Controlgear — Part 4-1: Contactors and Motor-Starters — Electromechanical Contactors and Motor-Starters
	UL 60947-4-2	Low-Voltage Switchgear and Controlgear — Part 4-2: Contactors and Motor-Starters — AC Semiconductor Motor Controllers and Starters
	UL 61800-5-1	Adjustable Speed Electrical Power Drive Systems — Part 5-2: Safety Requirements — Functional
445	UL 508	Industrial Control Equipment
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	UL 1004-4	Electric Generators
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480	UL 10C	Positive Pressure Fire Tests of Door Assemblies

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	UL 1642	Lithium Batteries
	UL 1973	Batteries for Use in Stationary, Vehicle Auxiliary Power and Light Electric Rail (LER) Applications
	UL 1989	Standby Batteries
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	UL 4127	~~Outline for~~ Low Voltage Battery Cable
	UL 4128	Intercell and Intertier Connectors for use in Electrochemical Battery System Applications
490	UL 347	Medium-Voltage AC Contactors, Controllers, and Control Centers
	UL 347A	Medium Voltage Power Conversion Equipment
	UL ~~Subject~~ 347B	Medium Voltage Motor Controllers, Up to 15kV
	UL ~~Subject~~ 347C	Medium Voltage Solid State Resistive Load Controllers, Up to 15kV
	UL 1008A	Transfer Switch Equipment, Over 1000 Volts
	~~UL 1671~~	~~Medium Voltage Metal-Clad Switchgear~~
500	FM 121303	Guide for Use of Detectors for Flammable Gases
~~500~~	IEEE 844.1	Skin Effect Trace Heating of Pipelines, Vessels, Equipment, and Structures — General, Testing, Marking, and Documentation Requirements
	IEEE 1349	Guide for the Application of Electric Machines in Zone 2 and Class I, Division 2 Hazardous (Classified) Locations
	NFPA 33	Standard for Spray Application Using Flammable or Combustible Materials
	NFPA 34	Standard for Dipping, Coating, and Printing Processes Using Flammable or Combustible Liquids
	NFPA 496	Standard for Purged and Pressurized Enclosures for Electrical Equipment
	~~UL 514B~~	~~Conduit, Tubing, and Cable Fittings~~
	UL 674	Electric Motors and Generators for Use in Hazardous (Classified) Locations
	UL 698A	Industrial Control Panels Relating to Hazardous (Classified) Locations
	UL 783	Electric Flashlights and Lanterns for Use in Hazardous (Classified) Locations
	UL 823	Electric Heaters For Use in Hazardous (Classified) Locations
	UL 844	Electric Heaters For Use in Hazardous (Classified) Locations
	UL 913	Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, and III, Division 1, Hazardous (Classified) Locations
	UL 1203	Explosionproof and Dust-Ignition-Proof Electrical Equipment for Use in Hazardous (Classified) Locations
	UL 1389	Plant Oil Extraction Equipment for Installation and Use in Ordinary (Unclassified) Locations and Hazardous (Classified) Locations

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	UL 1836	Electric Motors and Generators for Use in Class I, Division 2, Class I, Zone 2, Class II, Division 2 and Zone 22 Hazardous (Classified) Locations
	UL 2225	Cable and Cable Fittings for Use in Hazardous (Classified) Locations
	UL 60079-28	Explosive Atmospheres — Part 28: Protection of Equipment and Transmission Systems Using Optical Radiation.
	UL 60079-29-1	Explosive Atmospheres — Part 29-1: Gas Detectors — Performance Requirements of Detectors for Flammable Gases
	UL 60079-29-4	Explosive Atmospheres — Part 29-4: Gas Detectors — Performance Requirements of Open Path Detectors for Flammable Gases
	UL 60079-30-1	Explosive Atmospheres — Electrical Resistance Trace Heating — General and Testing Requirements
	UL 60079-33	Explosive Atmospheres — Part 33: Equipment Protection by Special Protection “s”
	UL 121201	Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations
	UL 121303	Guide for Use of Detectors for Flammable Gases
	UL 122001	General Requirements for Electrical Ignition Systems for Internal Combustion Engines in Class I, Division 2 or Zone 2, Hazardous (Classified) Locations
	UL 122701	Requirements for Process Sealing Between Electrical Systems and Potentially Flammable or Combustible Process Fluids
~~501~~	~~ISA 12.12.01~~	~~Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations~~
501	IEEE 844.1	Skin Effect Trace Heating of Pipelines, Vessels, Equipment, and Structures — General, Testing, Marking, and Documentation Requirements
	IEEE 1349	Guide for the Application of Electric Machines in Zone 2 and Class I, Division 2 Hazardous (Classified) Locations
	NFPA 496	Standard for Purged and Pressurized Enclosures for Electrical Equipment
	~~UL 1~~	~~Flexible Metal Conduit~~
	~~UL 13~~	~~Power Limited Circuit Cables~~
	~~UL 248-2~~	~~Low-Voltage Fuses — Part 2: Class C Fuses~~
	~~UL 248-3~~	~~Low-Voltage Fuses — Part 3: Class CA and CB Fuses~~
	~~UL 248-4~~	~~Low-Voltage Fuses — Part 4: Class CC Fuses~~
	~~UL 248-5~~	~~Low-Voltage Fuses — Part 5: Class G Fuses~~
	~~UL 248-6~~	~~Low-Voltage Fuses — Part 6: Class H Non-Renewable Fuses~~
	~~UL 248-8~~	~~Low-Voltage Fuses — Part 8: Class J Fuses~~
	~~UL 248-9~~	~~Low-Voltage Fuses — Part 9: Class K Fuses~~
	~~UL 248-12~~	~~Low-Voltage Fuses — Part 12: Class R Fuses~~
	~~UL 248-15~~	~~Low-Voltage Fuses — Part 15: Class T Fuses~~
	~~UL 467~~	~~Grounding and Bonding Equipment~~
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Article	Standard Number	Standard Title
	UL 674	Electric Motors and Generators for Use in Hazardous (Classified) Locations
	UL 783	Electric Flashlights and Lanterns for Use in Hazardous (Classified) Locations
	UL 823	Standard for Electric Heaters For Use in Hazardous (Classified) Locations
	UL 844	Luminaires for Use in Hazardous (Classified) Locations
	UL 1072	Medium-Voltage Power Cables
	UL 1203	Explosionproof and Dust-Ignition-Proof Electrical Equipment for Use in Hazardous (Classified) Locations
	UL ~~1272~~ 1277	Electrical Power and Control Tray Cables with Optional Optical-Fiber Members
	UL 1309A	~~P-Cables~~ Cable for Use in Mobile Applications
	~~UL 1389~~	~~Standard for Plant Oil Extraction Equipment for Installation and Use in Ordinary (Unclassified) Locations and Hazardous (Classified) Locations~~
	~~UL 1569~~	~~Metal-Clad Cables~~
	UL 1836	~~Outline of Investigation for~~ Electric Motors and Generators for Use in Class I, Division 2, Class I, Zone 2, Class II, Division 2 and Zone 22 Hazardous (Classified) Locations
	~~UL 2011 (Part 3)~~	~~Outline of Investigation for Machinery~~
	UL 2225	Cable and Cable Fittings for Use in Hazardous (Classified) Locations
	~~UL 2515A~~	~~Supplemental Requirements for Extra Heavy Wall Reinforced Thermosetting Resin Conduit (RTRC) and Fittings~~
	~~UL 2874~~	~~Outline of Investigation for Electric Motors for Use in Hazardous (Classified) Locations - Protection by Pressurized Atmosphere Maintained above the UFL~~
	~~UL 4300~~	~~Outline of Investigation for Electrically Heated Insulated Covers for Compressed Gas Cylinders for Use in Hazardous (Classified) Locations~~
	UL 60079-28	Explosive Atmospheres — Part 28: Protection of Equipment and Transmission Systems Using Optical Radiation
	UL 60079-29-1	Explosive Atmospheres — Part 29-1: Gas Detectors — Performance Requirements of Detectors for Flammable Gases
	UL 60079-29-4	Explosive Atmospheres — Part 29-4: Gas Detectors — Performance Requirements of Open Path Detectors for Flammable Gases
	UL 60079-30-1	~~Explosive Atmospheres —~~ Part 30-1: Electrical Resistance Trace Heating — General and Testing Requirements
	UL 60079-33	Explosive Atmospheres — Part 33: Equipment Protection by Special Protection “s”
	UL 121201	Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations
	~~UL 121303~~	~~Guide for Combustible Gas Detection as a Method of Protection~~
	UL 122001	General Requirements for Electrical Ignition Systems for Internal Combustion Engines in Class I, Division 2 or Zone 2, Hazardous (Classified) Locations

Article	Standard Number	Standard Title
	UL 122701	Requirements for Process Sealing Between Electrical Systems and Potentially Flammable or Combustible Process Fluids
502	IEEE 844.1	Skin Effect Trace Heating of Pipelines, Vessels, Equipment, and Structures — General, Testing, Marking, and Documentation Requirements
~~502~~	NFPA 496	Standard for Purged and Pressurized Enclosures for Electrical Equipment
	~~UL 13~~	~~Power Limited Circuit Cables~~
	UL 674	Electric Motors and Generators for Use in Hazardous (Classified) Locations
	UL 783	Electric Flashlights and Lanterns for Use in Hazardous (Classified) Locations
	UL 823	~~Standard for~~ Electric Heaters For Use in Hazardous (Classified) Locations
	UL 844	Luminaires for Use in Hazardous (Classified) Locations
	UL 1203	Explosionproof and Dust-Ignition-Proof Electrical Equipment for Use in Hazardous (Classified) Locations
	UL 1309A	~~Marine Shipboard~~ Cable for Mobile Installations
	UL 1836	Outline of Investigation for Electric Motors and Generators for Use in Class I, Division 2, Class I, Zone 2, Class II, Division 2 and Zone 22 Hazardous (Classified) Locations
	~~UL 2011 (Part 3)~~	~~Outline of Investigation for Machinery~~
	UL 2225	Cable and Cable Fittings for Use in Hazardous (Classified) Locations
	~~UL 2250~~	~~Instrumentation Tray Cable~~
	UL 60079-28	~~Explosive Atmospheres —~~ Part 30-1: Part 28: Protection of Equipment and Transmission Systems Using Optical Radiation
	UL 60079-30-1	Explosive Atmospheres — Electrical Resistance Trace Heating — General and Testing Requirements
	UL 60079-33	Explosive Atmospheres — Part 33: Equipment Protection by Special Protection “s”
	UL 121201	Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations
503	IEEE 844.1	Skin Effect Trace Heating of Pipelines, Vessels, Equipment, and Structures — General, Testing, Marking, and Documentation Requirements
~~503~~	~~UL 13~~	~~Power Limited Circuit Cables~~
	UL 823	Standard for Electric Heaters For Use in Hazardous (Classified) Locations
	UL 844	Luminaires for Use in Hazardous (Classified) Locations
	~~UL 1203~~	~~Explosionproof and Dust-Ignition-Proof Electrical Equipment for Use in Hazardous (Classified) Locations~~
	UL 1836	~~Outline of Investigation for~~ Electric Motors and Generators for Use in Class I, Division 2, Class I, Zone 2, Class II, Division 2 and Zone 22 Hazardous (Classified) Locations
	~~UL 2225~~	~~Cable and Cable Fittings for Use in Hazardous (Classified) Locations~~
	~~UL 2250~~	~~Instrumentation Tray Cable~~

Article	Standard Number	Standard Title
	UL 60079-30-1	Explosive Atmospheres — Electrical Resistance Trace Heating — General and Testing Requirements
	UL 121201	Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations
504	UL 698A	Standard for Industrial Control Panels Relating to Hazardous (Classified) Locations
	UL 913	Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, and III, Division 1, Hazardous (Classified) Locations
	UL 120202	Recommendations for the Preparation, Content, and Organization of Intrinsic Safety Control Drawings
505	FM 121303	Guide for Use of Detectors for Flammable Gases
~~505~~	IEEE 844.1	Skin Effect Trace Heating of Pipelines, Vessels, Equipment, and Structures — General, Testing, Marking, and Documentation Requirements
	IEEE 1349	Guide for the Application of Electric Machines in Zone 2 and Class I, Division 2 Hazardous (Classified) Locations
	~~UL 13~~	~~Power Limited Circuit Cables~~
	~~UL 674~~	~~Electric Motors and Generators for Use in Hazardous (Classified) Locations~~
	~~UL 1203~~	~~Explosionproof and Dust-Ignition-Proof Electrical Equipment for Use in Hazardous (Classified) Locations~~
	UL 1309A	~~Marine Shipboard~~ Cable for Mobile Installations
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	~~UL 2011 (Part 3)~~	~~Outline of Investigation for Machinery~~
	UL 2225	Cable and Cable Fittings for Use in Hazardous (Classified) Locations
	~~UL 2250~~	~~Instrumentation Tray Cable~~
	~~UL 2874~~	~~Outline for Electric Motors for Use in Hazardous (Classified) Locations — Protection by Pressurized Atmosphere Maintained above the UFL~~
	UL 60079-0	Explosive ~~Gas~~ Atmospheres — Part 0: Equipment — General Requirements
	UL 60079-1	~~Explosive Gas Atmospheres — Part 1: Type of Protection — Flameproof "d"~~ Explosive Atmospheres — Part 1: Equipment Protection by Flameproof Enclosures "d"
	UL 60079-2	~~Standard for~~ Explosive Atmospheres — Part 2: Equipment protection by pressurized enclosure "p"
	UL 60079-5	Explosive Gas Atmospheres — Part 5: Type of Protection — Powder Filling "q"
	UL 60079-6	~~Standard for~~ Explosive Atmospheres — Part 6: Equipment Protection by Liquid Immersion "o"
	UL 60079-7	~~Explosive Gas Atmospheres — Part 7: Increased Safety "e"~~ Explosive Atmospheres — Part 7: Equipment Protection by Increased Safety "e"

Article	Standard Number	Standard Title
	UL 60079-10-1	Explosive Atmospheres — Part 10-1: Classification of Areas — Explosive Gas Atmospheres
	UL 60079-11	Explosive Atmospheres — Part 11: Equipment Protection by Intrinsic Safety “i”
	UL 60079-13	~~Standard for~~ Explosive Atmospheres — Part 13: Equipment Protection by Pressurized Room “p” and Artificially Ventilated Room “v”
	UL 60079-15	~~Electrical Apparatus for Explosive Gas Atmospheres — Part 15: Type of Protection “n”~~ Explosive Atmospheres — Part 15: Equipment Protection by Type of Protection “n”
	UL 60079-18	~~Electrical Apparatus for Use in Class I, Zone 1 Hazardous (Classified) Locations Type of Protection — Encapsulation “m”~~ Explosive Atmospheres — Part 18: Equipment Protection by Encapsulation “m”
	UL 60079-25	Explosive Atmospheres — Part 25: Intrinsically Safe Electrical Systems
	UL 60079-26	~~Standard for~~ Explosive Atmospheres — Part 26: Equipment with Equipment Protection Level (EPL) Ga
	UL 60079-28	~~Standard for~~ Explosive Atmospheres — Part 28: Protection of Equipment and Transmission Systems Using Optical Radiation
	UL 60079-29-1	Explosive Atmospheres — Part 29-1: Gas Detectors — Performance Requirements of Detectors for Flammable Gases
	UL 60079-29-4	Explosive Atmospheres — Part 29-4: Gas Detectors — Performance Requirements of Open Path Detectors for Flammable Gases
	UL 60079-30-1	~~Standard for~~ Explosive Atmospheres — Part 30-1: Electrical Resistance Trace Heating — General and Testing Requirements
	UL 60079-33	Explosive Atmospheres — Part 33: Equipment Protection by Special Protection “s”
	UL 80079-36	Explosive Atmospheres — Part 36: Non-Electrical Equipment for Explosive Atmospheres — Basic Method and Requirements
	UL 80079-37	Explosive Atmospheres — Part 37: Non-Electrical Equipment for Explosive Atmospheres — Non Electrical Type of Protection Constructional Safety “c”, Control of Ignition Source “b”, Liquid Immersion “k”
	~~UL 122001~~	~~General Requirements for Electrical Ignition Systems for Internal Combustion Engines in Class I, Division 2 or Zone 2, Hazardous (Classified) Locations~~
	UL 121303	Guide for Use of Detectors for Flammable Gases
	UL 122701	Requirements for Process Sealing Between Electrical Systems and Flammable or Combustible Process Fluids
506	IEEE 844.1	Skin Effect Trace Heating of Pipelines, Vessels, Equipment, and Structures — General, Testing, Marking, and Documentation Requirements
	UL 698A	Industrial Control Panels Relating to Hazardous (Classified) Locations
	~~UL 13~~	~~Power Limited Circuit Cables~~
	~~UL 1277~~	~~Electrical Power and Control Tray Cables with Optional Optical-Fiber Members~~
	~~UL 2011 (Part 3)~~	~~Outline of Investigation for Machinery~~

Article	Standard Number	Standard Title
	UL 2225	Cable and Cable Fittings for Use in Hazardous (Classified) Locations
	UL 60079-0	Explosive ~~Gas~~ Atmospheres — Part 0: Equipment — General Requirements
	UL 60079-2	~~Standard for~~ Explosive atmospheres — Part 2: Equipment protection by pressurized enclosure “p”
	~~UL 60079-10-2~~	~~Part 10-2: Classification of Areas — Combustible Dust Atmospheres~~
	UL 60079-11	Explosive Atmospheres — Part 11: Equipment Protection by Intrinsic Safety "i"
	UL 60079-18	~~Electrical Apparatus for Use in Class I, Zone 1 Hazardous (Classified) Locations Type of Protection — Encapsulation “m”~~ Explosive Atmospheres — Part 18: Equipment Protection by Encapsulation “m”
	UL 60079-25	Explosive Atmospheres — Part 25: Intrinsically Safe Electrical Systems
	UL 60079-28	~~Standard for~~ Explosive Atmospheres — Part 28: Protection of Equipment and Transmission Systems Using Optical Radiation
	UL 60079-30-1	~~Explosive Atmospheres —~~ Part 30-1: Electrical Resistance Trace Heating — General and Testing Requirements
	UL 60079-31	Explosive Atmospheres — Part 31: Equipment Dust Ignition Protection by Enclosure “t”
	UL 60079-33	Explosive Atmospheres — Part 33: Equipment Protection by Special Protection “s”
	UL 62784	Vacuum Cleaners and Dust Extractors Providing Equipment Protection Level Dc for the Collection of Combustible Dusts — Particular Requirements
	UL 80079-36	Explosive Atmospheres — Part 36: Non-Electrical Equipment for Explosive Atmospheres — Basic Method and Requirements
	UL 80079-37	Explosive Atmospheres — Part 37: Non-Electrical Equipment for Explosive Atmospheres — Non Electrical Type of Protection Constructional Safety “c”, Control of Ignition Source “b“, Liquid Immersion “k”
~~511~~	~~UL 2225~~	~~Cable and Cable Fittings for Use in Hazardous (Classified) Locations~~
	~~UL 122701~~	~~Requirements for Process Sealing Between Electrical Systems and Flammable or Combustible Process Fluids~~
~~514~~	~~UL 2225~~	~~Cable and Cable Fittings for Use in Hazardous (Classified) Locations~~
~~517~~	~~AAMI ES60601-1~~	~~Medical electrical equipment— Part 1: General requirements for basic safety and essential performance~~
512	UL 1389	Plant Oil Extraction Equipment for Installation and Use in Ordinary (Unclassified) Locations and Hazardous (Classified) Locations
516	NFPA 33	Standard for Spray Application Using Flammable or Combustible Materials
	NFPA 34	Standard for Dipping, Coating, and Printing Processes Using Flammable or Combustible Liquids
~~515~~	UL 844	Luminaires for Use in Hazardous (Classified) Locations

Article	Standard Number	Standard Title
517	AAMI ES 60601-1	~~AAMI Medical Electrical Equipment — Part 1: General Requirements for Basic Safety and Essential Performance~~ Medical electrical equipment — Part 1: General requirements for basic safety and essential performance
	UL 5	Surface Metal Raceways and Fittings
	UL 5A	Nonmetallic Surface Raceways and Fittings
	UL 467	Grounding and Bonding Equipment
	UL 498	Attachment Plugs and Receptacles
	UL 498D	Attachment Plugs, Cord Connectors and Receptacles with Arcuate (Locking Type) Contacts
	UL 498E	Attachment Plugs, Cord Connectors and Receptacles — Enclosure Types for Environmental Protection
	UL 498F	Plugs, Socket-Outlets and Couplers with Arcuate (Locking Type) Contacts
	UL 651	Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings
	UL 1022	Line Isolation Monitors
	UL 1047	Isolated Power Systems Equipment
	UL 1286	Office Furnishing Systems
	UL 2930	Cord-and-Plug-connected Health Care Facility Outlet Assemblies
	UL 60601-1	Medical Electrical Equipment — Part 1: General Requirements for Safety
	UL 122701	Requirements for Process Sealing Between Electrical Systems and Flammable or Combustible Process Fluids
518	UL 498	Attachment Plugs and Receptacles
	UL 498D	Attachment Plugs, Cord Connectors and Receptacles with Arcuate (Locking Type) Contacts
	UL 498E	Attachment Plugs, Cord Connectors and Receptacles — Enclosure Types for Environmental Protection
	UL 498F	Plugs, Socket-Outlets and Couplers with Arcuate (Locking Type) Contacts
	UL 943	Ground-Fault Circuit-Interrupters
	UL 943C	~~Outline for~~ Special Purpose Ground-Fault Circuit-Interrupters
	UL 2305	Exhibition Display Units, Fabrication and Installation
	UL 2305A	Convention Center Cord Sets
520	UL 62	Flexible Cords and Cables
	UL ~~Subject~~ 334	Theater Lighting Distribution and Control Equipment
	UL 1573	Stage and Studio Luminaires and Connector Strips
	UL 1640	Portable Power-Distribution Equipment
	UL 1691	Single Pole Locking-Type Separable Connectors
522	UL 13	Power Limited Circuit Cables
	UL 1063	Machine-Tool Wires and Cables
	UL 2250	Instrumentation Tray Cable
525	UL 62	Flexible Cords and Cables
	UL 817	Cord Sets and Power-Supply Cords

Article	Standard Number	Standard Title
	UL 943	Ground-Fault Circuit-Interrupters
	UL 943C	~~Outline for~~ Special Purpose Ground-Fault Circuit-Interrupters
	UL 1691	Single Pole Locking-Type Separable Connectors
530	UL 62	Flexible Cords and Cables
	UL 1479	Fire Tests of Penetration Firestops
	UL 1573	Stage and Studio Luminaires and Connector Strips
	UL 1680	~~Outline for~~ Stage and Lighting Cables
	UL 1691	Single Pole Locking-Type Separable Connectors
	UL 1836	~~Outline of Investigation for~~ Electric Motors and Generators for Use in Class I, Division 2, Class I, Zone 2, Class II, Division 2 and Zone 22 Hazardous (Classified) Locations
	UL 62368-1	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
540	UL 62368-1	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
545	UL 5	Surface Metal Raceways and Fittings
	UL 5A	Nonmetallic Surface Raceways and Fittings
	UL 5B	Strut-Type Channel Raceways and Fittings
	UL 5C	Surface Raceways and Fittings for Use with Data, Signal, and Control Circuits
	UL 20	General Use Snap Switches
	UL 209	Cellular Metal Floor Raceways and Fittings
	UL 498	Attachment Plugs and Receptacles
	UL 498D	Attachment Plugs, Cord Connectors and Receptacles with Arcuate (Locking Type) Contacts
	UL 498E	Attachment Plugs, Cord Connectors and Receptacles — Enclosure Types for Environmental Protection
	UL 498F	Plugs, Socket-Outlets and Couplers with Arcuate (Locking Type) Contacts
	UL 514A	Metallic Outlet Boxes
	UL 514C	Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
	UL 2024	Cable Routing Assemblies and Communications Raceways
547	UL 50	Enclosures for Electrical Equipment, Non-Environmental Considerations
	UL 50E	Enclosures for Electrical Equipment, Environmental Considerations
	UL 62	Flexible Cords and Cables
	UL 514A	Metallic Outlet Boxes
	UL 514B	Conduit, Tubing, and Cable Fittings
	UL 514C	Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
	UL 1598	Luminaires
	UL 2225	Cable and Cable Fittings for Use in Hazardous (Classified) Locations
550	UL 6	Electrical Rigid Metal Conduit — Steel
	UL 6A	Electrical Rigid Metal Conduit — Aluminum, Red Brass and Stainless Steel

Article	Standard Number	Standard Title
	UL 83	Thermoplastic-Insulated Wires and Cables
	~~UL 234~~	~~Low Voltage Lighting Fixtures for Use in Recreational Vehicles~~
	UL 307A	Liquid Fuel-Burning Heating Appliances for Manufactured Homes and Recreational Vehicles
	UL 307B	Gas-Burning Heating Appliances for Manufactured Homes and Recreational Vehicles
	UL 360	Liquid-Tight Flexible Metal Conduit
	UL 467	Grounding and Bonding Equipment
	UL 498	Attachment Plugs and Receptacles
	UL 498D	Attachment Plugs, Cord Connectors and Receptacles with Arcuate (Locking Type) Contacts
	UL 498E	Attachment Plugs, Cord Connectors and Receptacles — Enclosure Types for Environmental Protection
	UL 498F	Plugs, Socket-Outlets and Couplers with Arcuate (Locking Type) Contacts
	UL 651	Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings
	UL 817	Cord Sets and Power-Supply Cords
	UL 1242	Electrical Intermediate Metal Conduit — Steel
	UL ~~Subject~~ 1462	Mobile Home Pipe Heating Cable
	UL 1598	Luminaires
	UL 1660	Liquid-Tight Flexible Nonmetallic Conduit
	UL 2108	Low-Voltage Lighting Systems
	UL 2515	Aboveground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
551	UL 6	Electrical Rigid Metal Conduit — Steel
	UL 6A	Electrical Rigid Metal Conduit — Aluminum, Red Brass and Stainless Steel
	UL 62	Flexible Cords and Cables
	UL 231	Power Outlets
	UL 234	Low Voltage Lighting Fixtures for use in Recreational Vehicles
	UL 360	Liquid-Tight Flexible Metal Conduit
	UL 467	Grounding and Bonding Equipment
	UL 486C	Splicing Wire Connectors
	UL 498	Attachment Plugs and Receptacles
	UL 498D	Attachment Plugs, Cord Connectors and Receptacles with Arcuate (Locking Type) Contacts
	UL 498E	Attachment Plugs, Cord Connectors and Receptacles — Enclosure Types for Environmental Protection
	UL 498F	Plugs, Socket-Outlets and Couplers with Arcuate (Locking Type) Contacts
	UL 514A	Metallic Outlet Boxes
	UL 514C	Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
	UL 514D	Cover Plates for Flush-Mounted Wiring Devices
	UL 651	Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings

Article	Standard Number	Standard Title
	UL 817	Cord Sets and Power-Supply Cords
	UL 943	Ground-Fault Circuit-Interrupters
	UL 1004-4	Electric Generators
	UL 1008	Transfer Switch Equipment
	UL 1008M	~~Outline for~~ Transfer Switch Equipment, Meter Mounted
	UL 1008S	Solid-State Transfer Switches
	UL 1242	Electrical Intermediate Metal Conduit — Steel
	UL 1449	Surge Protective Devices
	UL 1598	Luminaires
	UL 1660	Liquid-Tight Flexible Nonmetallic Conduit
	UL 2200	Stationary Engine Generator Assemblies
	UL 2515	Aboveground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
	UL 60730-1	Automatic Electrical Controls; Part 1: General Requirements
	UL 60730-2-9	Automatic Electrical Controls; Part 2: Particular Requirements for Temperature Sensing Controls
552	SAE J1128-2015	Low Voltage Primary Cable, for Types GXL, HDT, and SXL
	SAE J1127-2015	Low Voltage Battery Cable, for Types SGT and SGR
	UL 6	Electrical Rigid Metal Conduit — Steel
	UL 6A	Electrical Rigid Metal Conduit — Aluminum, Red Brass and Stainless Steel
	UL 50	Enclosures for Electrical Equipment, Non-Environmental Considerations
	UL 50E	Enclosures for Electrical Equipment, Environmental Considerations
	UL 62	Flexible Cords and Cables
	UL 67	Panelboards
	UL 231	Power Outlets
	UL 234	Low Voltage Lighting Fixtures for Use in Recreational Vehicles
	UL 360	Liquid-Tight Flexible Metal Conduit
	UL 430	Waste Disposers
	UL 467	Grounding and Bonding Equipment
	UL 514A	Metallic Outlet Boxes
	UL 514B	Conduit, Tubing, and Cable Fittings
	UL 514C	Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
	UL 651	Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings
	UL 817	Cord Sets and Power-Supply Cords
	UL 916	Energy Management Equipment
	UL 943	Ground-Fault Circuit-Interrupters
	UL 1004-4	Electric Generators
	UL 1242	Electrical Intermediate Metal Conduit — Steel
	UL 1563	Electric Spas, Equipment Assemblies, and Associated Equipment
	UL 1598	Luminaires

Article	Standard Number	Standard Title
	UL 1660	Liquid-Tight Flexible Nonmetallic Conduit
	UL 2108	Low Voltage Lighting Systems
	UL 2200	Stationary Engine Generator Assemblies
	UL 2515	Aboveground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
555	UL 6	Electrical Rigid Metal Conduit — Steel
	UL 6A	Electrical Rigid Metal Conduit — Aluminum, Red Brass and Stainless Steel
	UL 231	Power Outlets
	UL 486D	Sealed Wire Connector Systems
	UL 651	Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings
	UL 676	Underwater Luminaires and Submersible Junction Boxes
	UL 943	Ground-Fault Circuit-Interrupters
	UL 1053	Ground-Fault Sensing and Relaying Equipment
	UL 1650	Portable Power Cable
	UL 2515	Aboveground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
590	UL 496	Lampholders
	UL 514B	Conduit, Tubing, and Cable Fittings
	UL 588	Seasonal and Holiday Decorative Products
	UL 817	Cord Sets
	UL 943	Ground-Fault Circuit-Interrupters
	UL 1088	Temporary Lighting Strings
	UL 1377	~~Outline for~~ Wire used in Low Voltage Seasonal Lighting Products In Circuits With a Maximum Available Power of 15W
	~~UL 1838~~	~~Low Voltage Landscape Lighting Systems~~
	~~UL 2108~~	~~Low Voltage Lighting Systems~~
600	UL 1	Flexible Metal Conduit
	UL 5	Surface Metal Raceways and Fittings
	UL 5A	Nonmetallic Surface Raceways and Fittings
	UL 13	Power-Limited Circuit Cables
	UL 48	Electric Signs
	UL 50	Enclosures for Electrical Equipment, Non-Environmental Considerations
	UL 50E	Enclosures for Electrical Equipment, Environmental Considerations
	UL 98B	~~Outline for~~ Enclosed and Dead-Front Switches for Use in Photovoltaic Systems
	UL 248-19	Low-Voltage Fuses — Part 19: Photovoltaic Fuses
	UL 360	Liquid-Tight Flexible Metal Conduit
	UL 489B	Molded-Case Circuit Breakers, Molded-Case Switches, and Circuit-Breaker Enclosures For Use With Photovoltaic (PV) Systems
	UL 508I	~~Outline for~~ Disconnect Switches Intended for Use in Photovoltaic Systems

Article	Standard Number	Standard Title
	UL 814	Gas-Tube-Sign Cable
	UL 879	Electric Sign Components
	UL 879A	LED Sign and Sign Retrofit Kits
	UL ~~Subject~~ 879B	Polymeric Enclosure Systems for the Splice Between Neon Tubing Electrode Leads and GTO Cable, and the GTO Cable Leading to the Splice
	UL 943	Ground-Fault Circuit-Interrupters
	UL 1310	Class 2 ~~and Class 3~~ Power Units
	UL 1660	Liquid-Tight Flexible Nonmetallic Conduit
	UL 1699B	Photovoltaic (PV) DC Arc-Fault Circuit Protection
	Ul 1741	Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources
	UL 2161	Neon Transformers and Power Supplies
	UL 2703	Mounting Systems, Mounting Devices, Clamping/Retention Devices, and Ground Lugs for Use with Flat-Plate Photovoltaic Modules and Panels
	UL 3001	Distributed Energy Generation and Storage Systems
	UL 3003	~~Outline for~~ Distributed Generation Cables
	UL 3703	Solar Trackers
	~~UL 4248-18~~	~~Outline for Fuseholders — Part 18: Photovoltaic~~
	UL 4703	Photovoltaic Wire
	UL 6703	Connectors for Use in Photovoltaic Systems
	UL 7103	~~Outline for~~ Investigation for Building-Integrated Photovoltaic Roof Coverings
	UL 8703	~~Outline for~~ Concentrator Photovoltaic Modules and Assemblies
	~~UL 8801~~	~~Outline for Photovoltaic-Powered Luminaire Systems~~
	UL 9703	~~Outline for~~ Distributed Generation Wiring Harnesses
	UL 61730-1	Photovoltaic (PV) Module Safety Qualification — Part 1: Requirements For Construction
	UL 61730-2	Photovoltaic (PV) Module Safety Qualification — Part 2: Requirements For Testing
	UL 62109	Power Converters for Use in Photovoltaic Power Systems — Part 1: General Requirements
	UL 62368-1	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
604	UL 1	Flexible Metal Conduit
	UL 4	Armored Cable
	UL 5	Surface Metal Raceways and Fittings
	UL 5A	Nonmetallic Surface Raceways and Fittings
	UL 5B	Strut-Type Channel Raceways and Fittings
	UL 5C	Surface Raceways and Fittings for Use with Data, Signal, and Control Circuits
	UL 62	Flexible Cords and Cables
	UL 183	Manufactured Wiring Systems
	UL 209	Cellular Metal Floor Raceways and Fittings
	UL 360	Liquid-Tight Flexible Metal Conduit

Article	Standard Number	Standard Title
	UL 797	Electrical Metallic Tubing — Steel
	UL 797A	Electrical Metallic Tubing — Aluminum and Stainless Steel
	UL 857	Busways
	UL 1569	Metal-Clad Cables
	UL 2024	Cable Routing Assemblies and Communications Raceways
605	UL 962	Household and Commercial Furnishings
	UL 1286	Office Furnishings Systems
	UL 1310	Class 2 ~~and Class 3~~ Power Units
	UL 2999	Individual Commercial Office Furnishings
	UL 5085-3	Low Voltage Transformers — Part 3: Class 2 and Class 3 Transformers
	UL 62368-1	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
610	UL 62	Flexible Cords and Cables
	UL ~~Subject~~ 2273	Festoon Cable
620	UL 62	Flexible Cords and Cables
	UL 83	Thermoplastic-Insulated Wires and Cables
	UL 98	Enclosed and Dead-Front Switches
	UL 104	Elevator Door Locking Devices and Contacts
	UL 489	Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures
	UL 508	Industrial Control Equipment
	UL 508A	Industrial Control Panels
	UL 1066	Low-Voltage AC and DC Power Circuit Breakers Used in Enclosures
	UL 1310	Class 2 Power Units
	UL 1449	Surge Protective Devices
	UL 1685	Vertical-Tray Fire-Propagation and Smoke-Release Test for Electrical and Optical-Fiber Cables
	UL 2556	Wire and Cable Test Methods
	UL 62368-1	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
625	UL 62	Flexible Cords And Cables
	UL 1650	Portable Power Cable
~~625~~	UL 2202	Electric Vehicle (EV) Charging System Equipment
	UL 2231-1	Personnel Protection Systems for Electric Vehicle (EV) Supply Circuits — Part 1: General Requirements
	UL 2231-2	Personnel Protection Systems for Electric Vehicle (EV) Supply Circuits — Part 2: Particular Requirements for Protection Devices for Use in Charging Systems
	UL 2251	Plugs, Receptacles and Couplers for Electrical Vehicles
	UL 2580	Batteries for Use in Electric Vehicles
	UL 2594	Electric Vehicle Supply Equipment
	UL ~~Subject~~ 9741	~~Bidirectional Electric Vehicle (EV) Charging System Equipment~~ Electric Vehicle Power Export Equipment (EVPE)

Article	Standard Number	Standard Title
626	UL 62	Flexible Cords and Cables
	UL 231	Power Outlets
	UL 498	Attachment Plugs and Receptacles
	UL 498D	Attachment Plugs, Cord Connectors and Receptacles with Arcuate (Locking Type) Contacts
	UL 498E	Attachment Plugs, Cord Connectors and Receptacles — Enclosure Types for Environmental Protection
	UL 498F	Plugs, Socket-Outlets and Couplers with Arcuate (Locking Type) Contacts
	UL 817	Cord Sets and Power-Supply Cords
	UL 1651	Optical Fiber Cable
	UL 1686	Pin and Sleeve Configurations
630	UL 551	Transformer-Type Arc-Welding Machines
640	UL 13	Power Limited Circuit Cables
	UL 62	Flexible Cords and Cables
	UL 813	Commercial Audio Equipment
	UL 1310	Class 2 Power Units
	UL 1419	Professional Video and Audio Equipment
	UL 1492	Audio-Video Products and Accessories
	UL 1711	Amplifiers for Fire Protective Signaling Systems
	UL 2269	~~Outline for~~ Optical Fiber/Communications/Signaling/Coaxial Cable Outlet Boxes
	UL 6500	Audio/Video and Musical Instrument Apparatus for Household, Commercial, and Similar General Use
	UL 60065	Audio, Video and Similar Electronic Apparatus — Safety Requirements
	UL 62368-1	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
645	UL 38	Manual Signaling Boxes for Fire Alarm Systems
	UL 268	Smoke Detectors for Fire Alarm Systems
	UL 444	Communications Cables
	UL 464	Audible Signaling Devices for Fire Alarm and Signaling Systems, Including Accessories
	UL 497B	Protectors for Data Communications and Fire Alarm Circuits
	UL 833	Control Units and Accessories for Fire Alarm Systems
	UL 864	Control Units and Accessories for Fire Alarm Systems
	UL ~~1425~~ 1424	Cables for Power-Limited Fire-Alarm Circuits
	UL ~~1426~~ 1425	Cables for Non-Power-Limited Fire-Alarm Circuits
	UL 1449	Surge Protective Devices
	UL 1480	Speakers for Fire Alarm and Signaling Systems, Including Accessories
	UL 1638	Visible Signaling Devices for Fire Alarm and Signaling Systems, Including Accessories
	UL 1651	Optical Fiber Cable
	UL 1685	Vertical-Tray Fire-Propagation and Smoke-Release Test for Electrical and Optical-Fiber Cables

Article	Standard Number	Standard Title
	UL 1690	Data-Processing Cable
	UL 1778	Uninterruptible Power Systems
	UL 2024	Cable Routing Assemblies and Communications Raceways
	UL 60950-1	Information Technology Equipment Safety — Part 1: General Requirements
	UL 60950-21	Information Technology Equipment Safety — Part 21: Remote Power Feeding
	UL 60950-22	Information Technology Equipment Safety — Part 22: Equipment to be Installed Outdoors
	UL 60950-23	Information Technology Equipment Safety — Part 23: Large Data Storage Equipment
	UL 62368-1	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
646	UL 10C	Positive Pressure Fire Tests of Door Assemblies
	UL 62	Flexible Cords and Cables
	UL 67	Panelboards
	UL 98	Enclosed and Dead-Front Switches
	UL 305	Panic Hardware
	UL 347	Medium-Voltage AC Contactors, Controllers, and Control Centers
	UL 489	Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures
	UL 508	Industrial Control Equipment
	UL 508A	Industrial Control Panels
	UL 845	Motor Control Centers
	UL 869A	Reference Standard for Service Equipment
	UL 891	Switchboards
	~~UL 891A~~	~~Switchboards Rated 601–1000 V~~
	UL 924	Emergency Lighting and Power Equipment
	UL 977	Fused Power-Circuit Devices
	UL 1008	Transfer Switch Equipment
	UL 1008A	Transfer Switch Equipment, Over 1000 Volts
	UL 1008M	Meter-Mounted Transfer Switches
	UL 1008S	Solid-State Transfer Switches
	UL 1062	Unit Substations
	UL 1066	Low-Voltage AC and DC Power Circuit Breakers Used in Enclosures
	UL 1429	Pullout Switches
	UL 1449	Surge Protective Devices
	UL 1655	Community-Antenna Television Cables
	UL 1989	Standby Batteries
	UL ~~Subject~~ 2755	Modular Data Centers
	UL 62368-1	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
647	UL 1598	Luminaires

Article	Standard Number	Standard Title
650	UL 1310	Class 2 Power Units
	UL 1581	Reference Standard for Electrical Wires, Cables, and Flexible Cords
	UL 62368-1	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
670	ANSI/CSA-C22.2 No. 19085-1	Woodworking machines — Safety — Part 1: Common requirements
	UL 508	Industrial Control Equipment
	UL 61800-5-1	Adjustable Speed Electrical Power Drive Systems — Part 5-1: Safety Requirements — Electrical, Thermal and Energy
	~~UL 489~~	~~Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures~~
	~~UL 489G~~	~~Outline for Molded-Case Circuit Breakers, Molded-Case Switches, and Circuit-Breaker Enclosures, 650–1000 Volts AC and 650–1500 Volts DC~~
675	UL 493	Thermoplastic-Insulated Underground Feeder and Branch-Circuit Cables
	UL 1581	Reference Standard for Electrical Wires, Cables, and Flexible Cords
680	UL 6	Electrical Rigid Metal Conduit — Steel
	UL 6A	Electrical Rigid Metal Conduit — Aluminum, Red Brass and Stainless Steel
	UL 20	General Use Snap-Switches
	UL 62	Flexible Cords and Cables
	UL 360	Liquid-Tight Flexible Metal Conduit
	UL 379	Power Units for Fountain, Swimming Pool, and Spa Luminaires
	UL 467	Grounding and Bonding Equipment
	UL 486D	Sealed Wire Connector Systems
	UL 489	Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures
	UL 651	Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings
	UL 676	Underwater Luminaires and Submersible Junction Boxes
	UL 676A	Potting Compounds for Swimming Pool, Fountain, and Spa Equipment
	UL 943	Ground-Fault Circuit-Interrupters
	UL 943C	~~Outline for~~ Special Purpose Ground-Fault Circuit-Interrupters
	UL 1004-10	Pool Pump Motors
	~~UL 1060~~	~~Circuit Breaker and Ground Fault Circuit Interrupters~~
	UL 1081	Swimming Pool Pumps, Filters, and Chlorinators
	UL 1241	~~Isolated Power Systems Equipment~~ Junction Boxes for Swimming Pool Luminaires
	UL 1242	Electrical Intermediate Metal Conduit — Steel
	UL 1261	Electric Water Heaters for Pools and Tubs
	UL 1563	Electric Spas, Equipment Assemblies, and Associated Equipment
	UL 1569	Metal-Clad Cables

Article	Standard Number	Standard Title
	UL 1660	Liquid-Tight Flexible Nonmetallic Conduit
	UL 1795	Hydromassage Bathtubs
	UL 2420	Belowground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
	UL ~~Subject~~ 2452	~~Outline of Investigation for~~ Electric Swimming Pool and Spa Cover Operators
	UL 2515	Aboveground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
	UL 2515A	Supplemental Requirements for Extra Heavy Wall Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
	UL 2995	Lifts for Swimming Pools and Spas
	UL 60335-2-1000	Household and Similar Electrical Appliances: Particular Requirements for Electrically Powered Pool Lifts
682	UL 486D	Sealed Wire Connector Systems
	UL 1650	Portable Power Cable
	UL 1838	Low Voltage Landscape Lighting Systems
690	UL 98B	Enclosed and Dead-Front Switches for Use in Photovoltaic Systems
	UL 248-19	Low-Voltage Fuses — Part 19: Photovoltaic Fuses
	UL 467	Grounding and Bonding Equipment
	UL 489B	Molded-Case Circuit Breakers, Molded-Case Switches, and Circuit-Breaker Enclosures ~~for~~ For Use ~~with~~ With Photovoltaic (PV) Systems
	UL ~~Subject~~ 508I	~~Manual~~ Disconnect Switches Intended for Use in Photovoltaic Systems
	UL 1569	Metal-Clad Cables
	UL 1699B	Photovoltaic (PV) DC Arc-Fault Circuit Protection
	UL 1703	Flat-Plate Photovoltaic Modules and Panels
	UL 1741	Inverters, Converters, Controllers and Interconnection System Equipment for Use with Distributed Energy Resources
	UL 2703	Mounting Systems, Mounting Devices, Clamping/Retention Devices, and Ground Lugs for Use with Flat-Plate Photovoltaic Modules and Panels
	UL 3001	Distributed Energy Generation and Storage Systems
	UL 3003	Distributed Generation Cables
	UL 3005	Distributed Energy Resource Management Systems
	UL ~~Subject~~ 3703	Solar Trackers
	UL ~~Subject~~ 3730	Photovoltaic Junction Boxes
	UL 3741	Photovoltaic Hazard Control
	UL 4703	Photovoltaic Wire
	UL 6703	Connectors for Use in Photovoltaic Systems
	~~UL Subject 6703A~~	~~Multi-Pole Connectors for Use in Photovoltaic Systems~~
	UL 7103	~~Outline for~~ Investigation for Building-Integrated Photovoltaic Roof Coverings
	UL ~~Subject~~ 8703	Concentrator Photovoltaic Modules and Assemblies

Article	Standard Number	Standard Title
	UL 8801	~~Outline for~~ Photovoltaic ~~Powered~~ Luminaire Systems
	UL ~~Subject~~ 9703	Distributed Generation Wiring Harnesses
	UL 61730-1	Photovoltaic (PV) Module Safety Qualification — Part 1: Requirements for Construction
	UL 61730-2	Photovoltaic (PV) Module Safety Qualification — Part 2: Requirements for Testing
	UL 62109-1	Power Converters for Use in Photovoltaic Power Systems — Part 1: General Requirements
	UL 62275	Cable Management Systems — Cable Ties for Electrical Installation
~~693~~		
692	UL 2262	~~Outline for~~ Fuel Cell Modules for Use in Portable and Stationary Equipment
	UL 2262A	~~Outline for~~ Borohydride Fuel Cartridges with Integral Fuel Processing for Use with Portable Fuel Cell Power Systems or Similar Equipment
	UL 2265	Fuel Cell Power Units and Fuel Storage Containers for Portable Devices
	UL 2265A	~~Outline for~~ Hand-held or Hand-Transportable Fuel Cell Power Units with Disposable Methanol Fuel Cartridges for use in Original Equipment Manufacturer's Information Technology Equipment
	UL 2265C	~~Outline for~~ Hand-Held or Hand-Transportable Alkaline (Direct Borohydride) Fuel Cell Power Units and Borohydride Fuel Cartridges For Use With Consumer Electronics or Information Technology Equipment
	UL 2266	Electromagnetic Compatibility, Electrical Safety, and Physical Protection of Stationary and Portable Fuel Cell Power Systems for Use with Commercial Network Telecommunications Equipment
	UL 2267	Fuel Cell Power Systems for Installation in Industrial Electric Trucks
694	UL 467	Grounding and Bonding Equipment
	UL ~~Subject~~ 489C	Molded-Case Circuit Breakers and Molded-Case Switches for Use with Wind Turbines
	UL 1741	Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources
	UL 2227	~~Outline for~~ Flexible Motor Supply Cable and Wind Turbine Tray Cable
	UL 2736	~~Outline for~~ Single Pole Separable Interconnecting Cable Connectors for Use with Wind Turbine Generating Systems
	UL 4143	Wind Turbine Generator — Life Time Extension (LTE)
	UL 6141	Wind Turbines Permitting Entry of Personnel
	UL 6142	Wind Turbine Generating Systems — Small
	~~UL 6171~~	~~Wind Turbine Converters and Interconnection Systems Equipment~~
695	UL 6	Electrical Rigid Metal Conduit — Steel

Article	Standard Number	Standard Title
	UL 6A	Electrical Rigid Metal Conduit — Aluminum, Red Brass and Stainless Steel
	UL 218	Fire Pump Controllers
	UL 448	Centrifugal Stationary Pumps for Fire-Protection Service
	UL 448B	Residential Fire Pumps Intended for One- and Two-Family Dwellings and Manufactured Homes
	UL 448C	Stationary, Rotary-Type, Positive-Displacement Pumps for Fire Protection Service
	UL 651	Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings
	UL 1004-5	Fire Pump Motors
	UL 1242	Electrical Intermediate Metal Conduit — Steel
	UL 1569	Metal-Clad Cables
	UL 1724	~~Outline for~~ Fire Tests for Electrical Circuit Protective Systems
	UL 2196	Fire Test for Circuit Integrity of Fire-Resistive Power, Instrumentation, Control and Data Cables
	UL 2515	Aboveground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
~~696~~		
700	UL 924	Emergency Lighting and Power Equipment
	UL 1008	Transfer Switch Equipment
	UL 1008A	Transfer Switch Equipment, Over 1000 Volts
	UL 1449	Surge Protective Devices
	UL 1724	~~Outline for~~ Fire Tests for Electrical Circuit Protective Systems
	UL 2196	Fire Test for Circuit Integrity of Fire-Resistive Power, Instrumentation, Control and Data Cables
	UL 2200	Stationary Engine Generator Assemblies
701	UL 924	Emergency Lighting and Power Equipment
	UL 1008	Transfer Switch Equipment
	UL 1008A	Transfer Switch Equipment, Over 1000 Volts
702	UL 98	Enclosed and Dead-Front Switches
~~702~~	UL 1008	Transfer Switch Equipment
~~703~~		
	UL 1008A	Transfer Switch Equipment, Over 1000 Volts
	UL 1008M	Meter-Mounted Transfer Switches
	UL 1008S	Solid-State Transfer Switches
705	UL 62	Flexible Cords and Cables
	UL 98	Enclosed and Dead-Front Switches
	UL 486D	Sealed Wire Connector Systems
	UL 489	Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures
	UL 1066	Low-Voltage AC and DC Power Circuit Breakers Used in Enclosures
	UL 1429	Pullout Switches

Article	Standard Number	Standard Title
	UL 1741	Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources
	UL 2200	Stationary Engine Generator Assemblies
	UL 3003	~~Outline for~~ Distributed Generation Cables
	UL 6141	Wind Turbines Permitting Entry of Personnel
	UL 6142	Small Wind Turbine Systems
	~~UL 6171~~	~~Wind Turbine Converters and Interconnection Systems Equipment~~
	UL 9540	Energy Storage Systems and Equipment
	UL 62109-2	Power Converters for Use in Photovoltaic Power Systems — Part 2: Particular Requirements for Inverters
706	UL 248-2	Low-Voltage Fuses — Part 2: Class C Fuses
	UL 248-3	Low-Voltage Fuses — Part 3: Class CA and CB Fuses
	UL 248-4	Low-Voltage Fuses — Part 4: Class CC Fuses
	UL 248-5	Low-Voltage Fuses — Part 5: Class G Fuses
	UL 248-6	Low-Voltage Fuses — Part 6: Class H Non-Renewable Fuses
	UL 248-8	Low-Voltage Fuses — Part 8: Class J Fuses
	UL 248-9	Low-Voltage Fuses — Part 9: Class K Fuses
	UL 248-10	Low-Voltage Fuses — Part 10: Class L Fuses
	UL 248-12	Low-Voltage Fuses — Part 12: Class R Fuses
	UL 248-15	Low-Voltage Fuses — Part 15: Class T Fuses
	UL 248-17	Low-Voltage Fuses — Part 17: Class CF Fuses
	UL 248-18	Low-Voltage Fuses — Part 18: Class CD Fuses
	UL 489	Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures
	UL 489H	~~Outline for~~ Molded-Case Circuit Breakers, Molded-Case Switches, and Circuit-Breaker Enclosures, for Use with Direct Current (DC) Microgrids
	UL 1066	Low-Voltage AC and DC Power Circuit Breakers Used in Enclosures
	UL 1741	Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources
	UL 9540	Energy Storage Systems and Equipment
708	UL 1	Flexible Metal Conduit
	UL 4	Armored Cable
	UL 83	Thermoplastic-Insulated Wires and Cables
	UL 360	Liquid-Tight Flexible Metal Conduit
	UL 493	Thermoplastic-Insulated Underground Feeder and Branch-Circuit Cables
	UL 497A	Secondary Protectors for Communications Circuits
	UL 1008	Transfer Switch Equipment
	UL 1008A	Transfer Switch Equipment, Over 1000 Volts
	UL 1008M	Meter-Mounted Transfer Switches
	UL 1008S	Solid-State Transfer Switches
	UL 1569	Metal-Clad Cables

Article	Standard Number	Standard Title
	UL 2196	Fire Test for Circuit Integrity of Fire-Resistive Power, Instrumentation, Control and Data Cables
710	UL 1741	Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources
	UL 2200	Stationary Engine Generator Assemblies
	UL 8801	Photovoltaic Luminaire Systems
	UL 9540	Energy Storage Systems and Equipment
	UL 62109-1	Power Converters for use in Photovoltaic Power Systems — Part 1: General Requirements
	UL 62109-2	Power Converters for Use in Photovoltaic Power Systems — Part 2: Particular Requirements for Inverters
~~712~~	~~UL 248-2~~	~~Low-Voltage Fuses — Part 2: Class C Fuses~~
	~~UL 248-3~~	~~Low-Voltage Fuses — Part 3: Class CA and CB Fuses~~
	~~UL 248-4~~	~~Low-Voltage Fuses — Part 4: Class CC Fuses~~
	~~UL 248-5~~	~~Low-Voltage Fuses — Part 5: Class G Fuses~~
	~~UL 248-6~~	~~Low-Voltage Fuses — Part 6: Class H Non-Renewable Fuses~~
	~~UL 248-8~~	~~Low-Voltage Fuses — Part 8: Class J Fuses~~
	~~UL 248-9~~	~~Low-Voltage Fuses — Part 9: Class K Fuses~~
	~~UL 248-12~~	~~Low-Voltage Fuses — Part 12: Class R Fuses~~
	~~UL 248-15~~	~~Low-Voltage Fuses — Part 15: Class T Fuses~~
	~~UL 498G~~	~~Outline for Molded-Case Circuit Breakers, Molded-Case Switches, and Circuit-Breaker Enclosures, for Use with Direct Current (DC) Microgrids~~
	~~UL 1066~~	~~Low-Voltage AC and DC Power Circuit Breakers Used in Enclosures~~
	~~UL 1670~~	~~Medium Voltage Circuit Breakers and Metal-Clad Switchgear~~
	~~UL 1671~~	~~Medium Voltage Metal-Clad Switchgear~~
	~~UL 1741~~	~~Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources~~
	~~UL 6142~~	~~Small Wind Turbine Systems~~
	~~UL 6171~~	~~Wind Turbine Converters and Interconnection Systems Equipment~~
	~~UL 9540~~	~~Energy Storage Systems and Equipment~~
	~~UL 60947-1~~	~~Low-Voltage Switchgear and Controlgear — Part 1: General Rules~~
	~~UL 60947-4-1~~	~~Low-Voltage Switchgear and Controlgear — Part 4-1: Contactors and Motor-Starters — Electromechanical Contactors and Motor-Starters~~
	~~UL 62109-2~~	~~Power Converters for Use in Photovoltaic Power Systems — Part 2: Particular Requirements for Inverters~~
722	UL 13	Standard for Power-Limited Circuit Cables
	UL 444	Standard for Safety for Communications Cables
	UL 1424	Cables for Power-Limited Fire-Alarm Circuits
	UL 1651	Optical Fiber Cable
	UL 1666	Test for Flame Propagation Height of Electrical and Optical-Fiber Cable Installed Vertically in Shafts

Article	Standard Number	Standard Title
	UL 1685	Standard for Safety for Vertical-Tray Fire-Propagation and Smoke- Release Test for Electrical and Optical-Fiber Cables
	UL 1724	Fire Tests for Electrical Circuit Protective Systems
	UL 2024	Standard for Safety for Communications Cables
	UL 2196	Fire Test for Circuit Integrity of Fire-Resistive Power, Instrumentation, Control and Data Cables
	UL 2556	Standard for Wire and Cable Test Methods
~~725~~	~~UL 13~~	~~Power-Limited Circuit Cables~~
	~~UL 444~~	~~Communications Cable~~
	~~UL 1012~~	~~Power Units Other Than Class 2~~
	~~UL 1277~~	~~Electrical Power and Control Tray Cables with Optional Optical-Fiber Members~~
725	UL 1310	Class 2 Power Units
	~~UL 1666~~	~~Test for Flame Propagation Height of Electrical and Optical-Fiber Cables Installed Vertically in Shafts~~
	~~UL 1685~~	~~Vertical-Tray Fire-Propagation and Smoke-Release Test for Electrical and Optical-Fiber Cables~~
	~~UL 2196~~	~~Fire Test for Circuit Integrity of Fire -Resistive Power, Instrumentation, Control and Data Cables~~
	UL 5085-3	Low Voltage Transformers — Part 3: Class 2 and Class 3 Transformers
	UL ~~Subject~~ 9990	Information and Communication Technology (ICT) Power Cables
	UL 61010-2-201	Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use — Part 2-201: Particular Requirements for Control Equipment
	UL 61800-5-1	Adjustable Speed Electrical Power Drive Systems — Part 5-1: Safety Requirements — Electrical, Thermal and Energy
	UL 62368-1	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
726	UL 1400-1	Fault-Managed Power Systems — Part 1 General Requirements
	UL 1400-2	Fault-Managed Power Systems — Part 2 Requirements for Cables
	UL 1666	Test for Flame Propagation Height of Electrical and Optical-Fiber Cables Installed Vertically in Shafts
	UL 1685	Vertical-Tray Fire-Propagation and Smoke-Release Test for Electrical and Optical-Fiber Cables
	UL 2556	Wire and Cable Test Methods
~~727~~	~~UL 2250~~	~~Instrumentation Tray Cable~~
728	UL 5	Surface Metal Raceways and Fittings
	UL 5A	Nonmetallic Surface Raceways and Fittings
	UL 5B	Strut-Type Channel Raceways and Fittings
	UL 5C	Surface Raceways and Fittings for Use with Data, Signal, and Control Circuits
	UL 209	Cellular Metal Floor Raceways and Fittings
	UL 467	Grounding and Bonding Equipment

Article	Standard Number	Standard Title
	UL 514A	Metallic Outlet Boxes
	UL 514C	Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
	UL 568	Nonmetallic Cable Tray Systems
	UL 884	Underfloor Raceways and Fittings
	UL ~~Subject~~ 1724	Fire Tests for Electrical Circuit Protective Systems
	UL 2024	Cable Routing Assemblies and Communications Raceways
	UL 2196	Fire Test for Circuit Integrity of Fire-Resistive Power, Instrumentation, Control and Data Cables
760	UL 268	Smoke Detectors for Fire Alarm Signaling Systems
	UL 268A	Smoke Detectors for Duct Application
	UL 486C	Splicing Wire Connectors
	UL 497B	Protectors for Data Communication and Fire Alarm Circuits
	UL 1424	Cables for Power-Limited Fire-Alarm Circuits
	UL 1425	Cables for Non–Power-Limited Fire-Alarm Circuits
	UL 1480	Speakers for Fire Alarm and Signaling Systems, Including Accessories
	UL 1666	Test for Flame Propagation Height of Electrical and Optical-Fiber Cables Installed Vertically in Shafts
	UL 1685	Vertical-Tray Fire-Propagation and Smoke-Release Test for Electrical and Optical-Fiber Cables
	UL 2196	Fire Test for Circuit Integrity of Fire-Resistive Power, Instrumentation, Control and Data Cables
	UL 60730-2-14	Automatic Electrical Controls; Part 2: Particular Requirements for Electric Actuators
770	UL 467	Grounding and Bonding Equipment
	UL 568	Nonmetallic Cable Tray Systems
	UL 1651	Optical Fiber Cable
	UL 2024	Optical Fiber and Communication Cable Raceway
	UL 2196	Fire Test for Circuit Integrity of Fire-Resistive Power, Instrumentation, Control and Data Cables
	UL 62275	Cable Management Systems — Cable Ties for Electrical Installation
800	UL 444	Communications Cables
	UL 467	Grounding and Bonding Equipment
	UL 489A	Circuit Breakers for Use in Communication Equipment
	UL 497	Protectors for Paired-Conductor Communications Circuits
	UL 497A	Secondary Protectors for Communications Circuits
	UL 497C	Protectors for Coaxial Communications Circuits
	UL ~~Subject~~ 497E	Protectors for Antenna Lead-In Conductors
	UL ~~Subject~~ 523	Telephone Service Drop Wire
	UL 568	Nonmetallic Cable Tray Systems
	UL 723	Test for Surface Burning Characteristics of Building Materials
	UL 1581	Reference Standard for Electrical Wires, Cables, and Flexible Cords

Article	Standard Number	Standard Title
	UL 1666	Test for Flame Propagation Height of Electrical and Optical-Fiber Cables Installed Vertically in Shafts
	UL 1685	Vertical-Tray Fire-Propagation and Smoke-Release Test for Electrical and Optical-Fiber Cables
	UL 1863	Communication Circuit Accessories
	UL 2024	Cable Routing Assemblies and Communications Raceways
	UL 62275	Cable Management Systems — Cable Ties for Electrical Installation
805	UL 444	Communications Cables
	UL 497	Protectors for Paired-Conductor Communications Circuits
	UL 497A	Secondary Protectors for Communications Circuits
	UL 497C	Protectors for Coaxial Communications Circuits
	UL ~~Subject~~ 497E	Protectors for Antenna Lead-In Conductors
	UL ~~Subject~~ 523	Telephone Service Drop Wire
	UL 719	Nonmetallic-Sheathed Cables
	UL 1310	Class 2 Power Units
	UL 1581	Reference Standard for Electrical Wires, Cables, and Flexible Cords
	UL 1685	Vertical-Tray Fire-Propagation and Smoke-Release Test for Electrical and Optical-Fiber Cables
	UL 1863	Communication Circuit Accessories
	UL 2043	Fire Test for Heat and Visible Smoke Release for Discrete Products and Their Accessories Installed in Air-Handling Spaces
	UL 62275	Cable Management Systems — Cable Ties for Electrical Installation
	UL 62368-1	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
810	UL 150	Antenna Rotators
	UL 452	Antenna-Discharge Units
	UL 467	Grounding and Bonding Equipment
	UL ~~Subject~~ 497E	Protectors for Antenna Lead-In Conductors
820	UL 444	Communications Cables
	UL ~~Subject~~ 497E	Protectors for Antenna Lead-In Conductors
	UL 1655	Community-Antenna Television Cables
830	UL 444	Communications Cables
	UL 497A	Secondary Protectors for Communications Circuits
	UL 497C	Protectors for Coaxial Communications Circuits
	UL ~~Subject~~ 497E	Protectors for Antenna Lead-In Conductors
	UL 62368-1	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
840	UL 444	Communications Cables
	UL 467	Grounding and Bonding Equipment
	UL 498A	Current Taps and Adapters
	UL 1310	Class 2 Power Units

Article	Standard Number	Standard Title
	UL 1651	Optical Fiber Cable
	UL 1863	Communication Circuit Accessories
	UL 2024	Cable Routing Assemblies and Communications Raceways
	UL 62368-1	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
Tables 11(A) and 11(B)	UL 1310	Class 2 Power Units
	UL 1434	Thermistor-Type Devices
	UL 5085-3	Low Voltage Transformers — Part 3: Class 2 and Class 3 Transformers
	UL 62368-1	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
Tables 12(A) and 12(B)	UL 1310	Class 2 Power Units
	UL 1434	Thermistor-Type Devices
	UL 5085-3	Low Voltage Transformers — Part 3: Class 2 and Class 3 Transformers
	UL 62368-1	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements

Table A.1(b) Product Safety Standards for Conductors and Equipment That Do Not Have an Associated Listing Requirement

Article	Standard Number	Standard Title
110	UL 969	Marking and Labeling Systems
	UL 9691	Recommended Practice for Nameplates for Use in Electrical Installations
300	UL 635	Insulating Bushings
314	UL 514C	Conduit, Tubing, and Cable Fittings
	UL 2239	Hardware for the Support of Conduit, Tubing and Cable
320	UL 514A	Metallic Outlet Boxes
	UL 2239	Hardware for the Support of Conduit, Tubing and Cable
322	UL 5	Surface Metal Raceways and Fittings
	UL 2239	Hardware for the Support of Conduit, Tubing and Cable
324	UL 5	Surface Metal Raceways and Fittings
	UL 2239	Hardware for the Support of Conduit, Tubing and Cable
330	UL 2239	Hardware for the Support of Conduit, Tubing and Cable
332	UL 1565	Positioning Devices
	UL 2239	Hardware for the Support of Conduit, Tubing and Cable
334	UL 6	Electrical Rigid Metal Conduit — Steel
	UL 6A	Electrical Rigid Metal Conduit — Aluminum, Red Brass and Stainless Steel
	UL 514B	Conduit, Tubing, and Cable Fittings
	UL 651	Schedule 40 and 80 Rigid PVC Conduit

Article	Standard Number	Standard Title
	UL 797	Electrical Metallic Tubing — Steel
	UL 797A	Electrical Metallic Tubing — Aluminum and Stainless Steel
	UL 1242	Electrical Intermediate Metal Conduit — Steel
	UL 1565	Positioning Devices
	UL 2239	Hardware for the Support of Conduit, Tubing and Cable
	UL 2420	Belowground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
	UL 2515	Aboveground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
	UL 2515A	Supplemental Requirements for Extra Heavy Wall Reinforced Thermosetting Resin Conduit (RTRC) and Fittings.
335	UL 2250	Instrumentation Tray Cable
337	UL 1565	Positioning Devices
	UL 2239	Hardware for the Support of Conduit, Tubing and Cable
340	UL 493	Thermoplastic-Insulated Underground Feeder and Branch-Circuit Cables
342	UL 635	Insulating Bushings
	UL 2239	Hardware for the Support of Conduit, Tubing and Cable
344	UL 635	Insulating Bushings
	UL 2239	Hardware for the Support of Conduit, Tubing and Cable
348	UL 2239	Hardware for the Support of Conduit, Tubing and Cable
350	UL 2239	Hardware for the Support of Conduit, Tubing and Cable
352	UL 635	Insulating Bushings
	UL 2239	Hardware for the Support of Conduit, Tubing and Cable
353	UL 635	Insulating Bushings
355	UL 635	Insulating Bushings
	UL 2239	Hardware for the Support of Conduit, Tubing and Cable
356	UL 2239	Hardware for the Support of Conduit, Tubing and Cable
358	UL 2239	Hardware for the Support of Conduit, Tubing and Cable
362	UL 2239	Hardware for the Support of Conduit, Tubing and Cable
368	UL 857	Busways
392	UL 568	Nonmetallic Cable Tray Systems
400	UL 62	Flexible Cords and Cables
	UL 498	Attachment Plugs and Receptacles
	UL 498B	Receptacles with Integral Switching Means
	UL 498D	Attachment Plugs, Cord Connectors and Receptacles with Arcuate (Locking Type) Contacts
	UL 498E	Attachment Plugs, Cord Connectors and Receptacles — Enclosure Types for Environmental Protection
	UL 514B	Conduit, Tubing, and Cable Fittings
	UL 817	Cord Sets and Power-Supply Cords
	UL 1650	Portable Power Cable
	UL 1680	Stage and Lighting Cables
402	UL 66	Fixture Wire

Article	Standard Number	Standard Title
408	UL 50	Enclosures for Electrical Equipment, Non-Environmental Considerations
	UL 50E	Enclosures for Electrical Equipment, Environmental Considerations
424	UL 834	Heating, Water Supply, and Power Boilers — Electric
	UL 1693	Electric Radiant Heating Panels and Heating Panel Sets
	UL 1995	Heating and Cooling Equipment
	UL 1996	Electric Duct Heaters
	UL 60335-1	Safety of Household and Similar Electrical Appliances, Part 1: General Requirements
	UL 60335-2-40	Household and Similar Electrical Appliances, Part 2–40
425	UL 834	Heating, Water Supply, and Power Boilers — Electric
426	UL 1588	Roof and Gutter De-Icing Cable Units
427	UL 515	Electrical Resistance Trace Heating for Commercial Applications
	UL 1462	Mobile Home Pipe Heating Cable
	UL 2049	Residential Pipe Heating Cable
430	UL 248-13	Low Voltage Fuses — Part 13: Semiconductor Fuses
445	UL 3001	Distributed Energy Generation and Storage Systems
	UL 3010	Single Site Energy Systems
450	UL 50	Enclosures for Electrical Equipment, Non-Environmental Considerations
	UL 50E	Enclosures for Electrical Equipment, Environmental Considerations
	UL 248-1	Low-Voltage Fuses — Part 1: General Requirements
	UL 248-2	Low-Voltage Fuses — Part 2: Class C Fuses
	UL 248-3	Low-Voltage Fuses — Part 3: Class CA and CB Fuses
	UL 248-4	Low-Voltage Fuses — Part 4: Class CC Fuses
	UL 248-5	Low-Voltage Fuses — Part 5: Class G Fuses
	UL 248-8	Low-Voltage Fuses — Part 8: Class J Fuses
	UL 248-9	Low-Voltage Fuses — Part 9: Class K Fuses
	UL 489	Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures
	UL 1561	Dry-Type General Purpose and Power Transformers
	UL 5085-2	Low Voltage Transformers — Part 2: General Purpose Transformers
460	UL 810	Capacitors
	UL 1283	Electromagnetic Interference Filters
	UL 60384-14	Fixed Capacitors for Use in Electronic Equipment — Part 14: Sectional Specification: Fixed Capacitors for Electromagnetic Interference Suppression and Connection to the Supply Mains
470	UL 508	Industrial Control Equipment
	UL 1283	Electromagnetic Interference Filters
500	ANSI/IEEE C2	National Electrical Safety Code, Section 127A, Coal Handling Areas

Article	Standard Number	Standard Title
	API RP 14F	Recommended Practice for Design and Installation of Electrical Systems for Fixed and Floating Offshore Petroleum Facilities for Unclassified and Class I, Division 1 and Division 2 Locations
	API RP 500	Recommended Practice for Classification of Locations of Electrical Installations at Petroleum Facilities Classified as Class I, Division 1 and Division 2
	API RP 2003	Protection Against Ignitions Arising Out of Static Lightning and Stray Currents.
	ASHRAE 15	Safety Standard for Refrigeration Systems.
	ASME B1.20.1	Pipe Threads, General Purpose (Inch)
	IEEE 844.2	Standard for Skin Effect Trace Heating of Pipelines, Vessels, Equipment, and Structures — Application Guide for Design, Installation, Testing, Commissioning, and Maintenance
	IEEE 60079-30-2	IEEE/IEC International Standard for Explosive atmospheres — Part 30-2: Electrical resistance trace heating — Application guide for design, installation, and maintenance
	IIAR 2	Standard for Safe Design of Closed-Circuit Ammonia Refrigeration Systems
	ISA-12.10	Area Classification in Hazardous (Classified) Dust Locations
	ISO 965-1	ISO general purpose metric screw threads — Tolerances — Part 1: Principles and basic data
	ISO 965-3	ISO general purpose metric screw threads — Tolerances — Part 3: Deviations for constructional screw threads
	NFPA 30	Flammable and Combustible Liquids Code
	NFPA 32	Standard for Drycleaning Facilities
	NFPA 33	Standard for Spray Application Using Flammable or Combustible Materials
	NFPA 34	Standard for Dipping, Coating and Printing Processes Using Flammable or Combustible Liquids
	NFPA 35	Standard for the Manufacture of Organic Coatings
	NFPA 36	Standard for Solvent Extraction Plants
	NFPA 45	Standard on Fire Protection for Laboratories Using Chemicals
	NFPA 55	Compressed Gases and Cryogenic Fluids Code
	NFPA 58	Liquefied Petroleum Gas Code
	NFPA 59	Utility LP-Gas Plant Code
	NFPA 77	Recommended Practice on Static Electricity
	NFPA 497	Recommended Practice for the Classification of Flammable Liquids, Gases, or Vapors and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas
	NFPA 499	Recommended Practice for the Classification of Combustible Dusts and of Hazardous (Classified) Locations for Electrical Installation in Chemical Process Areas
	NFPA 780	Standard for the Installation of Lightning Protection Systems
	NFPA 820	Standard for Fire Protection in Wastewater Treatment and Collection Facilities
	UL 60079-29-2	Explosive Atmospheres — Part 29-2: Gas detectors — Selection, installation, use and maintenance of detectors for flammable gases and oxygen

Article	Standard Number	Standard Title
	UL 120002	Certificate Standard for AEx Equipment for Hazardous (Classified) Locations
	UL 120101	Definitions and Information Pertaining to Electrical Equipment in Hazardous (Classified) Locations
	UL 121303	Guide for Combustible Gas Detection as a Method of Protection
	UL RP 121203	Recommended Practice for Portable/Personal Electronic Products Suitable for Use in Class I, Division 2, Class I, Zone 2, Class II, Division 2, Class III, Division 1, Class III, Division 2, Zone 21 and 22 Hazardous (Classified) Locations
501	UL 62	Flexible Cord and Cable
	UL 504	Mineral-Insulated, Metal-Sheathed Cable
502	UL RP 121203	Recommended Practice for Portable/Personal Electronic Products Suitable for Use in Class I, Division 2, Class I, Zone 2, Class II, Division 2, Class III, Division 1, Class III, Division 2, Zone 21 and Zone 22 Hazardous (Classified) Locations
503	NFPA 505	Fire Safety Standard for Powered Industrial Trucks Including Type Designations, Areas of Use, Conversions, Maintenance, and Operations
	UL RP 121203	Recommended Practice for Portable/Personal Electronic Products Suitable for Use in Class I, Division 2, Class I, Zone 2, Class II, Division 2, Class III, Division 1, Class III, Division 2, Zone 21 and Zone 22 Hazardous (Classified) Locations
504	ISA-RP 12.06.01	Recommended Practice for Wiring Methods for Hazardous (Classified) Locations Instrumentation — Part 1: Intrinsic Safety
505	ANSI/API RP 14FZ	Recommended Practice for Design and Installation of Electrical Systems for Fixed and Floating Offshore Petroleum Facilities for Unclassified and Class I, Zone 0, Zone 1, and Zone 2 Locations
	API RP 505	Recommended Practice for Classification of Locations for Electrical Installations at Petroleum Facilities Classified as Class I, Zone 0, Zone 1, and Zone 2
	API RP 2003	Protection Against Ignitions Arising Out of Static Lightning and Stray Currents.
	ASME B1.20.1	Pipe Threads, General Purpose (Inch)
	EI 15	Model Code of Safe Practice, Part 15: Area Classification Code for Installations Handling Flammable Fluids
	IEEE 844.2	Skin Effect Trace Heating of Pipelines, Vessels, Equipment, and Structures — Application Guide for Design, Installation, Testing, Commissioning, and Maintenance
	IEEE 60079-30-2	Explosive Atmospheres — Part 30-2: Electrical resistance trace heating — Application guide for design, installation and maintenance
	IIAR 2	Standard for Safe Design of Closed-Circuit Ammonia Refrigeration Systems
	ISA-60079-10-1 (12.24.01)	Explosive Atmospheres — Part 10-1: Classification of Areas — Explosive gas atmospheres
	ISA-60079-29-2	Explosive Atmospheres — Part 29-2: Gas detectors — Selection, installation, use and maintenance of detectors for flammable gases and oxygen
	ISO 965-1	ISO general purpose metric screw threads — Tolerances — Part 1: Principles and basic data

Article	Standard Number	Standard Title
	ISO 965-3	ISO general purpose metric screw threads — Tolerances — Part 3: Deviations for constructional screw threads
	NFPA 30	Flammable and Combustible Liquids Code
	NFPA 77	Recommended Practice on Static Electricity
	NFPA 497	Recommended Practice for the Classification of Flammable Liquids, Gases, or Vapors and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas
	NFPA 780	Standard for the Installation of Lightning Protection Systems
	UL 80079-20-1	Explosive Atmospheres — Part 20-1: Material Characteristics for Gas and Vapour Classification — Test Methods and Data
	UL 120101	Definitions and Information Pertaining to Electrical Equipment in Hazardous (Classified) Locations
	UL 121303	Guide for Use of Detectors for Flammable Gases
	UL RP 121203	Recommended Practice for Portable/Personal Electronic Products Suitable for Use in Class I, Division 2, Class I, Zone 2, Class II, Division 2, Class III, Division 1, Class III, Division 2, Zone 21 and Zone 22 Hazardous (Classified) Locations
506	ASME B1.20.1	Pipe Threads, General Purpose (Inch)
	IEEE 844.2	Skin Effect Trace Heating of Pipelines, Vessels, Equipment, and Structures — Application Guide for Design, Installation, Testing, Commissioning, and Maintenance
	IEEE 60079-30-2	Explosive Atmospheres — Part 30-2: Electrical resistance trace heating — Application guide for design, installation and maintenance
	ISA-60079-10-2 (12.10.05)	Explosive Atmospheres — Part 10-2: Classification of Areas — Combustible Dust Atmospheres
	NFPA 499	Recommended Practice for the Classification of Combustible Dusts and of Hazardous (Classified) Locations for Electrical Installation in Chemical Process Areas
	UL RP 121203	Recommended Practice for Portable/Personal Electronic Products Suitable for Use in Class I, Division 2, Class I, Zone 2, Class II, Division 2, Class III, Division 1, Class III, Division 2, Zone 21 and Zone 22 Hazardous (Classified) Locations
511	NFPA 30A	Code for Motor Fuel Dispensing Facilities and Repair Garages
	NFPA 88A	Standard for Parking Structures
512	ICC IFC	International Fire Code
	NFPA 1	Fire Code
	NFPA 30	Flammable and Combustible Liquids Code
	NFPA 33	Standard for Spray Application Using Flammable or Combustible Materials
	NFPA 36	Standard for Solvent Extraction Plants
	NFPA 58	Liquefied Petroleum Gas Code
	NFPA 70B	Recommended Practice for Electrical Equipment Maintenance
	NFPA 497	Recommended Practice for the Classification of Flammable Liquids, Gases, or Vapors and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas
513	NFPA 30	Flammable and Combustible Liquids Code

Article	Standard Number	Standard Title
	NFPA 33	Standard for Spray Application Using Flammable or Combustible Materials
	NFPA 409	Standard on Aircraft Hangars
514	NFPA 2	Hydrogen Technologies Code
	NFPA 30A	Code for Motor Fuel Dispensing Facilities and Repair Garages
	NFPA 52	Vehicular Natural Gas Fuel Systems Code
	NFPA 58	Liquefied Petroleum Gas Code
	NFPA 59	Utility LP-Gas Plant Code
	NFPA 303	Fire Protection Standard for Marinas and Boatyards
515	NFPA 30	Flammable and Combustible Liquids Code
516	NFPA 13	Standard for the Installation of Sprinkler Systems
	NFPA 33	Standard for Spray Application Using Flammable or Combustible Materials
	NFPA 34	Standard for Dipping, Coating and Printing Processes Using Flammable or Combustible Liquids
	NFPA 77	Recommended Practice on Static Electricity
	NFPA 91	Standard for Exhaust Systems for Air Conveying of Vapors, Gases, Mists, and Particulate Solids
	NFPA 701	Standard Methods of Fire Tests for Flame Propagation of Textiles and Films
620	UL 4	Armored Cable
	UL 44	Thermoset-Insulated Wires and Cables
	UL 66	Fixture Wire
	UL 504	Mineral Insulated Wire
	UL 1063	Machine-Tool Wires and Cables
	UL 1569	Metal Clad Cable
625	UL 3001	Distributed Energy Generation and Storage Systems
	UL 3010	Single Site Energy Systems
630	UL 1276	Welding Cable
650	UL 1651	Optical Fiber Cable
660	UL 62	Flexible Cords and Cables
	UL 817	Cord Sets and Power Supply Cords
668	UL 4	Armored Cable
	UL 62	Flexible Cords and Cables
670	UL 2011	Machinery
675	UL 44	Thermoset-Insulated Wires and Cables
	UL 83	Thermoplastic-Insulated Wires and Cables
	UL 83A	Fluoropolymer Insulated Wire
	UL 1063	Machine-Tool Wires and Cables
	UL 1263	Irrigation Cable
690	UL 3001	Distributed Energy Generation and Storage Systems
	UL 3010	Single Site Energy Systems
691	UL 3001	Distributed Energy Generation and Storage Systems
	UL 3010	Single Site Energy Systems

Article	Standard Number	Standard Title
692	UL 44	Thermoset-Insulated Wires and Cables
	UL 83	Thermoplastic-Insulated Wires and Cables
	UL 83A	Fluoropolymer Insulated Wire
	UL 1063	Machine-Tool Wires and Cables
	UL 3001	Distributed Energy Generation and Storage Systems
	UL 3010	Single Site Energy Systems
694	UL 44	Thermoset-Insulated Wires and Cables
	UL 62	Flexible Cords and Cables
	UL 83	Thermoplastic-Insulated Wires and Cables
	UL 83A	Fluoropolymer Insulated Wire
	UL 1063	Machine-Tool Wires and Cables
	UL 3001	Distributed Energy Generation and Storage Systems
	UL 3010	Single Site Energy Systems
700	UL 3001	Distributed Energy Generation and Storage Systems
701	UL 3001	Distributed Energy Generation and Storage Systems
702	UL 3001	Distributed Energy Generation and Storage Systems
705	UL 3001	Distributed Energy Generation and Storage Systems
	UL 3010	Single Site Energy Systems
710	UL 3001	Distributed Energy Generation and Storage Systems
	UL 3010	Single Site Energy Systems

Supplemental Information

File Name	Description	Approved
NEC_AnnexA_SCR96.docx	For staff use	

Submitter Information Verification

Committee: NEC-AAC

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Committee Statement

Committee Statement: The UL standards are updated in Annex A. UL 121303 and FM 121303 are added to Annex A for Articles 500 and 505.

Committee Comment No. 7541-NFPA 70-2021 [Section No. A.1]